

# ***Cleanaway Lucas Heights Landfill Annual Environmental Management Report (AEMR) 2022***

**Date:** February 2023  
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**Definitions**

AEMR	Annual Environmental Management Report
AEP	Annual Exceedance Probability
AQOMP	Air Quality and Odour Management Plan
CRG	Community Reference Group
DP&E	Department of Planning and Environment (Development consent SSD 6835)
DPI	Department of Primary Industries & Water
EDL	Energy Developments Limited
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
EPR	Environmental Performance Review
ERP	Emergency Response Plan
GMP	Groundwater Management Plan
HDPE	High-density polyethylene
LHRRP	Lucas Heights Resource Recovery Park
LP	Leachate pit
MP	Monitoring Point
OEMP	Operational Environmental Management Plan
PCYC	Police Citizens Youth Club
PIRMP	Pollution Incident Response Management Plan
SSC	Southerland Shire Council
SEAR's	Secretary's Environmental Assessment Requirements
TMP	Traffic Management Plan
VPA	Voluntary Planning Agreement

## 1. Introduction

This Annual Environmental Management Report (AEMR) has been prepared to detail the environmental performance of the Lucas Heights Resource Recovery Park (LHRRP) located at Little Forest Road, Lucas Heights (including the expanded operations). This report has been prepared as per the requirements detailed in Development Consent SSD6835 (the Consent), which commenced on 23/1/2017. Specifically, this report covers 1/1/2022 to 31/12/2022 (the 2022 reporting period).

Section D9 (a) of the Development Consent requires an AEMR to be submitted to the Secretary by the end of February. This AEMR is the sixth report following the commencement of the expanded operations at LHRRP, which was previously owned and operated by SUEZ Resource and Recovery up until 17<sup>th</sup> December 2021, and thereafter by Cleanaway Waste Management Limited.

In accordance with section D9 of the Consent, the AEMR provides a review of the site environmental performance and a summary of environmental monitoring conducted at LHRRP, recommendations for environmental and operational improvements as a result of regulatory inspections and external feedback, as well as Cleanaway internal quality assurance programs and corrective actions.

Following correspondence from the Department of Planning (now known as DPE), dated 27/3/2019, additional information has been added into the AEMR, specifically in relation to:

- Non-compliance/s;
- Independent Environmental Audit (IEA) non-compliance/s and the Action Plan/s related to these non-compliances;
- Incidents;
- Waste Limits; and
- To address the requirements of the Department of Planning and Environment (DPE) Post Approval (dated 28/6/2019).

## 2. Non-Compliance Register

Based on the information contained within the 2022 AEMR for the Lucas Heights Landfill, the following non-compliances have been identified:

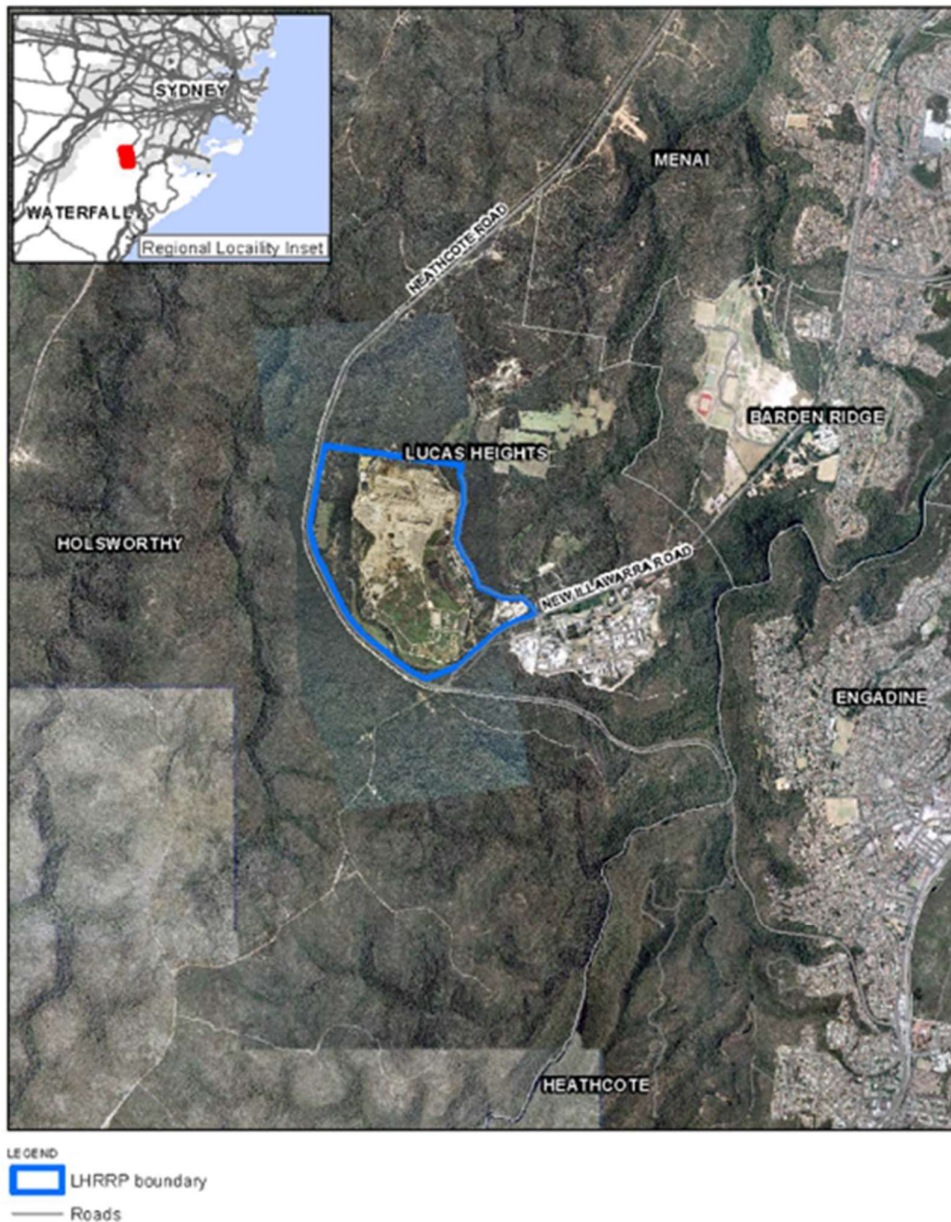
No.	Condition	Description	Status	Details	Actions taken to ensure compliance
1	B6 (a)	850,000 tonnes of general solid waste (putrescible and non-putrescible) and asbestos waste per year on site for landfill disposal	Non-Compliant	978,126 tonnes received	Consent modification is under preparation.

### 3. Site Background

Cleanaway Lucas Heights Resource Recovery Park is located off Little Forest Rd, Lucas Heights and is approximately 30km South West of the Sydney CBD. The site operates a drop-off for pre-sorted loads of paper and cardboard, steel and aluminium cans, e-waste, scrap metals, limited quantities of sump oil, white goods and vehicle batteries as well as a landfill disposal site accepting up to 850,000 tonnes of general solid waste and asbestos waste per annum. The site also houses the Lucas Heights Organic Resource Recovery Facility, which collects and processes organic material for recycling into compost.

The site has been operated by Cleanaway Waste Management since December 2021. Previously the facility was managed and operated by SUEZ.

An overview of the location of LHRRP can be seen in Figure 1.



**Figure 1: LHRRP Location Map**



Further to the above information, the following is a summary of the key activities undertaken during 2022, in addition to the normal waste management operations undertaken at the site:



- Waste filling continued in Area G.



- Emergency tipping platform in Area C activated during inclement weather conditions.





- Gabion drain extension at the western side of the landfill.



- Installation of final cap in Area A and B.





- Commencement of Stage 2 of North Wall excavation.



- Gas header pipe installation in Area A and B.





- Screening of capping materials.



- Gas well installation in Area G.



- Wheel wash upgrade works undertaken.

## 4. Compliance Status Summary

COMPLIANCE REQUIREMENT	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<b>SCHEDULE B ADMINISTRATIVE CONDITIONS</b>				
<b>OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT</b>				
B1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.	Operational	Compliant	Environmental management plans and procedures have been established to identify, plan and manage environmental aspects and impacts related to the LHRRP.	Independent Audit, BSI Certification, Environmental Risk Register, Environmental Monitoring Data
<b>TERMS OF CONSENT</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
B2. The Applicant shall carry out the Development in accordance with the:				
(a) EIS and RTS;	Operational	Compliant	The new GO facility and ARRT described in the EIS are yet to be constructed. Excavation of the area where the GO facility will be constructed began in January 2023. Overtopping of the landfill at Area G was undertaken in 2022. The phasing plan from the EIS was provided to Select Civil, to develop the more detailed fill platform drawings (in consultation with Cleanaway).	Not Applicable
(b) Development plans and drawings in the EIS and RTS (see Appendix A);	Operational	Compliant	b) The phasing plan from the EIS was provided to Select Civil, to develop the more detailed fill platform drawings (in consultation with Cleanaway). Whilst the sequencing has changed from that proposed in the EIS for operational reasons relating to managing gas, leachate and surface water, the overall footprint remains the same.	Reflected in the survey plan submitted to EPA
(c) the Management and Mitigation Measures (see Appendix B); and	Operational	Compliant	The Management and Mitigation Measures (landfill) included in Appendix B of the Consent have been included in the Landfill Operational Environmental Management Plan (OEMP). GO excavation began in January 2023.	Regular planning meetings with Select Civil for re-profiling work
(d) the draft Landfill, GO, ARRT and Post Closure Environmental Management Plans included in the EIS.	Development phase	Not Triggered	Landfill OEMP submitted. GO excavation began in January 2023.	Not Applicable
B3. If there is any inconsistency between the plans and documentation referred to in Condition B2 above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.	Pre-Construction	Not triggered	N/A	N/A
B4. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of: (a) any reports, plans or correspondence that are submitted in accordance with this consent; and (b) the implementation of any actions or measures contained in these documents.	Noted	N/A	N/A	N/A



LIMITS OF CONSENT	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B5. This consent lapses five years after the date from which it operates unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under Section 95 of the EP&A Act.	Operational	Compliant	SUEZ commenced re-profiling in January 2018, Cleanaway continued with reprofiling. Excavation for the GO facility commenced in January 2023.	Re-profiling has commenced.
B6. The Applicant shall not receive more than:				
(a) 850,000 tonnes of general solid waste (putrescible and non-putrescible) and asbestos waste per year on site for landfill disposal;	Operational	Non-Compliant	978,126 tonnes received for 2022 calendar year.	Mandalay, Monthly Tonnage report.
(b) 10,000 tonnes of general solid waste (non-putrescible) and batteries per year on site at the Resource Recovery Centre and waste collection point;	Operational	Compliant	SCC clarified that the limit is for recyclables only. In 2022, a total of 491 tonnes received.	Mandalay, Monthly Tonnage report.
(c) 80,000 tonnes of garden and wood waste per year and 2,000 tonnes of manure at the GO Facility;	Operational	Compliant	55,099 tonnes received in 2022 calendar year.	Mandalay, Monthly Tonnage report.
(d) 200,000 tonnes of general solid waste (putrescible and non-putrescible) per year including 10,000 tonnes of biosolids at the ARRT Facility; and	Not Triggered	Not Triggered	N/A	N/A
(e) the quantity of waste required to meet the final landform profile described in the EIS.	Not Triggered	Not Triggered	N/A	N/A
B7. The receipt, processing, and disposal of waste at the landfill, GO and ARRT facilities shall cease at the end of 2037.	Not Triggered	Not Triggered	N/A	N/A
OTHER CONSENTS AND APPROVALS	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B8. Within 6 months of the date of this consent, the Applicant shall modify DA 11- 01-99 to remove the conditions of that consent that relate to the LHRRP. The modification shall be in accordance with the Environmental Planning and Assessment Regulation, 2000. The modification is required to ensure all activities undertaken at the LHRRP are covered by this consent only.	Operational	Compliant	Modification was approved by Industry Assessment on 26/8/2019.	Department of Planning, Industry and Environment 2019 approval.
STATUTORY REQUIREMENTS	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B9. The Applicant shall ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.	Operational	Compliant	Development Consent SSD 6835 <ul style="list-style-type: none"> <li>EPL 5065 – covers operations of the landfill.</li> <li>EPL 12520 – covers operation of the existing Organics facility.</li> <li>EPL 13114 – was surrendered, EPA approval issued 30 July 2019.</li> <li>Trade Waste Agreement with Sydney Water</li> <li>Voluntary Planning Agreement (VPA) with Sutherland Shire Council,</li> <li>The ANSTO Agreement under which SUEZ lease land owned by ANSTO.</li> </ul>	Applicable Licences, permits and approvals/consents are held in on-site operations office.

STRUCTURAL ADEQUACY	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B10. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA.	Not Triggered	Not Triggered	N/A	N/A
Notes: • Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works; and • Part 8 of the EP&A Regulation sets out the requirements for the certification of the Development.	Noted	N/A	N/A	N/A
OPERATION OF PLANT AND EQUIPMENT	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B11 The Applicant shall ensure that all plant and equipment used for the Development are:				
(a) maintained in a proper and efficient condition; and	Operational	Compliant	<p><b>Landfill</b> Select Civil is responsible for maintaining plant and equipment used on the landfill. Select Civil use a number of tools including:</p> <ul style="list-style-type: none"> <li>• Pre-start checklists.</li> <li>• The Plant Assessor.</li> <li>• On-site maintenance workshop for non-major repairs.</li> <li>• Calibration/Inspection and Testing of Equipment Register.</li> </ul> <p><b>Organics Facility</b> Cleanaway was responsible for maintaining the Organics Facility plant and equipment, Cleanaway used a number of tools including:</p> <ul style="list-style-type: none"> <li>• Pre-start checklists.</li> <li>• The Cleanaway system which tracks required regular maintenance and issues noted in pre-start checklists.</li> </ul> <p><b>Water treatment plant and leachate treatment plant.</b> Both plants are maintained by JPG Engineering. JPG use a number of tools including:</p> <ul style="list-style-type: none"> <li>• A Maintenance Leachate Inventory and Operations Checklist completed on a daily basis.</li> <li>• Monitoring through SCADA which sends low flow, high level alarm alerts to JPG Engineering. JPG view the SCADA system online and receive emergency updates for example high-level alarms.</li> <li>• JPG provide Cleanaway with the records of maintenance.</li> </ul>	Records held in on-site operations office.
(b) Operated in a proper and efficient manner.	Operational	Compliant	Refer to the above information.	N/A

PROTECTION OF PUBLIC INFRASTRUCTURE	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B12. Prior to the commencement of construction, the Applicant shall:				
(a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, kerbs, footpaths, nature trip, street trees and furniture); and	Development phase	Compliant	A dilapidation report was prepared by AECOM dated 20 April 2017.	Records held in on-site operations office.
(b) submit a copy of this report to the Secretary and Council.	Development phase	Compliant	Dilapidation report submitted to DoP on 7 July 2017.	N/A
B13. The Applicant shall:				
(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged as a result of the Development; and	Not Triggered	Not Triggered	N/A	N/A
(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Development.	Not Triggered	Not Triggered	N/A	N/A
STAGED SUBMISSION OF PLANS OR PROGRAMS	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B14. With the approval of the Secretary, the Applicant may: (a) submit any strategy, plan, or program for the landfill re-profiling, GO Facility and ARRT Facility construction and operation, required by this consent, on a progressive basis; and/or (b) combine any strategy, plan or program required by this consent.	Development phase	Compliant	Staged submission approved by Planning and Environment 22 February 2018.	Records held in operations office.
DISPUTE RESOLUTION	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B15. In the event that a dispute arises between the Applicant and either Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties. Note: This condition does not relate to disputes raised regarding matters in the Voluntary Planning Agreement required under Condition 819.	Not Triggered	Not Triggered	N/A	N/A
COMPLIANCE	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B16. The Applicant shall ensure that employees, contractors, and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.	Operational	Compliant	Employees and contractors would be made aware of the section/s of the Consent relevant to their work through Toolbox Talks and Standard Operational Procedures.	Record of these is held in the on-site administration office.
B17. The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.	Noted	N/A	N/A	N/A
EVIDENCE OF CONSULTATION	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
B18. Where consultation with any public authority or community group is required by the conditions of this consent, the Applicant shall:				



(a) consult with the relevant public authority or community group prior to submitting the required documentation to the Secretary for approval, where required;	Operational	Compliant	ANSTO and Sutherland Shire Council are consulted prior to any submission.	Records are included in the MOD 1 submission.
(b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent; and	Operational	Compliant	Consent Modification SSD 6835 MOD 1 approved on 5 June 2018. MOD 2 submitted on 21 December 2022	N/A
(c) include the details of any outstanding issues raised by the relevant public authority or community group and an explanation of or agreement between any public authority or community group and the Applicant or any person acting on this Development consent.	Operational	Compliant	No outstanding actions.	N/A
<b>PLANNING AGREEMENT</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
B19. Prior to the commencement of construction and prior to receiving increased tonnes of waste in accordance with Condition B6(a), the Applicant shall enter into the Voluntary Planning Agreement with Council in accordance with the Letter of Offer dated 15 December 2016.	Development Phase	Compliant	Quarterly meeting held with council.	VPA Meeting records
<b>SCHEDULE C SPECIFIC ENVIRONMENTAL CONDITIONS</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
WASTE Receipt, Storage & Handling of Waste.				
C1. The Applicant shall only receive waste on site that is authorised for receipt by an EPL.	Operational	Compliant	Unacceptable waste would be rejected and sent to an alternative appropriately licensed facility.	Rejected waste is recorded in Mandalay reports.
C2. The Applicant shall ensure any waste generated on the site during construction is classified in accordance with the EPA's Waste Classification Guidelines, 2014 or its latest version, and disposed of to a facility that may lawfully accept the waste.	Not Triggered	Not Triggered	N/A	N/A

<p>C3. The Applicant shall: implement auditable procedures to:</p> <p>i. ensure the site does not accept wastes that are prohibited;</p> <p>ii. screen incoming waste loads; and</p> <p>(b) ensure that:</p> <p>i. all waste types that are controlled under a tracking system have the appropriate documentation prior to acceptance at the site; and</p> <p>ii. staff receive adequate training in order to be able to recognize and handle any hazardous or other prohibited waste.</p>	Operational	Compliant	<p>Weighbridge staff and staff at the public drop off are trained in SOP40 and other relevant SOPs including SOP030.3 – Radioactive Waste and Work Instruction 063.6 – Asbestos Waste Management.</p> <p>Incoming loads are visually screened by the weighbridge operator where possible and any waste that is not licensed to be received at the site is rejected.</p> <p>Waste brought to site by the public are sent to the public waste drop-off where Cleanaway staff monitor waste disposed of at the respective drop-off point e.g., general waste, green waste, mattresses, and e-waste.</p> <p>Asbestos must be bagged appropriately to be disposed of on-site, otherwise the load is rejected.</p> <p>A Rejected Load Form is completed for all rejected loads and they are recorded in a rejected load register. The rejected load register maintained at the weighbridge was sighted during the audit. The register included the date, docket number, registration of the vehicle, product (waste type), the reason for not tipping and was signed by the weighbridge attendant.</p> <p>Lucas Heights Landfill does not accept any trackable waste.</p>	Training records
<b>Monitoring</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C4. The Applicant shall provide details of the quantity, type and source of wastes received on the site and provide these details to the EPA and the Secretary when requested.	Operational	Compliant	Section 88 Return provided to the EPA monthly. Mandalay reporting system manages waste in and out of site.	WARRP and weighbridge Records
<b>Landfill Operations</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C5. To minimise the potential for odour generation, the Applicant shall, unless otherwise agreed in writing by the EPA:				
(a) ensure a maximum of 1 hectare of existing intermediate cover or 2 hectares of existing final capped cover may be stripped in advance of landfilling to form the prepared surface. The prepared surface must have a minimum depth of 300 millimetres;	Operational	Compliant	Select Civil Daily site sheets.	Records held in on-site operations office.

(b) at any one time a maximum of 2,500 metres squared of the prepared surface may be stripped back to expose previously landfilled waste to form the active tip face; and	Operational	Compliant	Select Civil Daily site sheets.	Records held in on-site operations office.
(c) the landfill gas field infrastructure must be retained and operating at all times, with the exception of the stripped back prepared surface.	Operational	Compliant	Monthly reports from Energy Development Limited.	Records held in on-site operations office.
<b>Imported Soil</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C6. The Applicant shall:				
(a) ensure that only VENM or ENM or other material approved in writing by the EPA is used as fill on the site;	Operational	Compliant	Mandalay	Operational OPDs Approved by EPA prior to delivery.
(b) keep accurate records of the volume and type of fill to be used; and	Operational	Compliant	Mandalay	Operational OPDs Approved by EPA prior to delivery.
(c) make these records available to the Secretary upon request.	Operational	Compliant	Mandalay	Operational OPDs Approved by EPA prior to delivery.
C7. During construction, the Applicant shall ensure any material brought on site for use as fill meets the requirements of the relevant Resource Recovery Order and Exemption issued under the Protection of the Environment Operations (Waste) Regulation 2014, to apply that material to land. The Applicant shall retain records of all material brought on site for filling purposes and provide the records to the EPA and the Secretary when requested.	Operational	Compliant	Mandalay	Operational OPDs Approved by EPA prior to delivery.
<b>ODOUR &amp; AIR QUALITY Limits</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C8. The Applicant shall ensure the Development does not cause or permit the emission of any offensive odour, as defined in the POEO Act.	Operational	Compliant	<p>Odour Patrols.</p> <p>The tip face size is limited. Waste is covered at the end of each day. An odour unit and odour fences are in place around the landfill and odour control measures are in place around the GO receivals area.</p> <p>The leachate and organics dams are aerated. Weather conditions were monitored for when possible odorous works are undertaken.</p> <p>Ongoing installation of additional landfill gas collection wells. EDL, the operators of the gas infrastructure, undertake inspections and identify areas that require additional wells or additional clay cover.</p>	Odour patrol recorded and Select Civil Daily inspection record this information.
C9. The Applicant shall:				
(a) operate and maintain all facilities within the site in a condition which controls the emission of dust; and	Operational	Compliant	Daily site checks and environmental monitoring undertaken.	Dust gauge monitoring
(b) carry out all reasonable and feasible measures to minimise dust from the site.	Operational	Compliant	Two water carts used, Monthly Dust Monitoring on site, Continuous Dust monitoring linked to weather station.	Dust monitoring records, Select Civil Daily checks



Meteorological Monitoring	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C10. The Applicant shall install, operate, and maintain a meteorological weather station on the site that complies with the requirements of an EPL for the site.	Operational	Compliant	Weather Station maintained on site.	Daily reports sent out by the system and all data available online. Data is downloaded and stored at regular intervals.
Site Air Quality and Odour Management Plan	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C11. The Applicant shall prepare a Site Air Quality and Odour Management Plan. The plan shall:				
Be prepared by a suitably qualified and experienced person in consultation with the EPA and Council; be submitted to the Secretary prior to the commencement of construction; list all emission sources across the LHRRP and key performance indicators for each emission type; describe odour and dust monitoring methods, location, frequency, and duration; show the locations of real-time dust monitors on and off-site with appropriate trigger values; report on the performance of the site against the key performance indicators for each emission type; detail proactive mitigation measures for the control of dust and odour impacts; detail the contingency measures to be implemented to respond to complaints or if dust or odour impacts are identified; and include record keeping, a complaint register and compliance reporting.	Development Phase	Compliant	<p>The AQOMP was prepared by SUEZ personnel, now Cleanaway.</p> <p>The AQOMP was submitted to the EPA by email dated 27 October 2017. A letter was received from the EPA dated 21 November 2017 stating that the EPA considers the AQOMP has considered the matters required by Condition C11 and providing one comment for SUEZ's consideration (to consider the impacts from uncapped areas and/or lack of vegetative matter on surface areas, and the subsequent potential to contribute to sediment loads in surface waters and windblown dust).</p> <p>The SCC provided feedback on the AQOMP, dated October 2017. The SCC made a number of comments. SUEZ response to the SCC was provided to the auditors and is included in the OEMP. SUEZ reported that SCC did not provide further comments.</p> <p>The final AQOMP was submitted to the department on 9.02.18.</p>	A record of consultation with the EPA, Council and DPE is provided in Section 13 of the AQOMP.
Landfill	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C12, The Applicant shall conduct an odour audit of the landfill to validate the odour reductions described in the EIS have been achieved at the existing landfill. The odour audit shall: be prepared by a suitably qualified and experienced person in consultation with the EPA and Council; be submitted to the EPA, Council, and the Secretary at least one month prior to the commencement of landfill re-profiling; include collection and analysis of odour samples in accordance with the EPA's Approved Methods for Sampling and Analysis of Air Pollutants in NSW; and identify mitigation measures with a timeline for implementation, where the odour reductions identified in the EIS are not being achieved.	Development Phase	Compliant	<p>The LHRRP Landfill Odour Audit was conducted by GHD (report dated October 2017) and submitted to SCC 25 September 2017.</p> <p>The report was also sent to EPA on 25 September 2017.</p>	Records are kept in the on-site operations office.

GO Facility	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C13. All organic material and waste shall be stored at the GO Facility in accordance with the requirements of an EPL for the site, including limits on the height of stockpiles and use of breathable membrane covers on compost bunkers.	Not triggered	Not triggered	N/A	N/A
C14. The Applicant shall conduct an odour audit of the GO Facility to validate the odour data used in the EIS. The odour audit shall: be prepared by a suitably qualified and experienced person in consultation with the EPA and Council; be submitted to the EPA, Council and the Secretary within 6 months of commencement of operation of the GO Facility as described in the EIS; include collection and analysis of odour samples in accordance with the EPA's Approved Methods for Sampling and Analysis of Air Pollutants in NSW; validate the efficiencies of the odour controls, specifically the covers used for the active composting stage; validate the odour data for freshly turned material; demonstrate that the final design achieves an equivalent or better performance than stated in the EIS, supported by dispersion modelling in accordance with EPA's Approved Methods for Sampling and Analysis of Air Pollutants in NSW, if required; and identify additional mitigation measures with a timeline for implementation, where odour performance significantly differs from the predictions in the EIS.	Not triggered	Not triggered	N/A	N/A
ARRT Facility	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<b>Biofilter and Pre-Treatment System</b>				
C15. The Applicant shall appoint an appropriately qualified and experienced person to design the ARRT Facility, biofilter and pre-treatment and post-treatment systems. The biofilter, pre-treatment and post-treatment systems shall be designed and constructed to: achieve the point source discharge parameters detailed in the EIS, as a minimum; and achieve a maximum odour emission concentration of 250 OU/m <sup>3</sup> at discharge. If 250 OU/m <sup>3</sup> cannot be achieved, the Applicant shall implement the pre- treatment and post-treatment systems, in accordance with the requirements of the EPA and in a timeframe approved by the Secretary.	Not Triggered	Not Triggered	N/A	N/A
<b>Pre-Operation</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C16. Prior to the commencement of operation of the ARRT Facility, the Applicant shall: provide written evidence to the EPA and the Secretary, from an independent odour expert to verify the final design parameters and actual stack parameters for the pre- treatment system and biofilter; prepare an odour verification report for the pre-treatment, biofilter and post-treatment system, prepared by an independent odour expert, to verify: a. the systems are fully commissioned prior to operation of the ARRT Facility; and b. approve the odour control system and the odour management plan required under Condition C17.	Not Triggered	Not triggered	N/A	N/A

<b>Air Quality and Odour Management Plan</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C17. The Applicant shall prepare an Air Quality and Odour Management Plan for the ARRT Facility. The plan shall: be prepared by an independent odour expert in consultation with the EPA and Council; be submitted to the EPA, Council, and the Secretary prior to the commencement of operation of the ARRT Facility; include an odour management strategy containing: objectives and targets; odour risk assessment; biofilter and pre-treatment monitoring and maintenance plan; air quality monitoring plan; communications strategy; and vi. system and performance review for continuous improvement.	Not Triggered	Not Triggered	N/A	N/A
<b>Biofilter and Pre-Treatment Monitoring and Maintenance Plan</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C18. The Applicant shall prepare a Biofilter, and Pre-Treatment Monitoring and Maintenance Plan as required under Condition C17. The plan shall: be prepared by an independent odour expert endorsed by the Secretary; be prepared in consultation with the EPA and Council; be submitted to the EPA, Council and the Secretary prior to the commencement of operation of the ARRT Facility; include a method for monitoring biofilter and pre-treatment performance that identifies biofilter and pre-treatment performance indicators that can be monitored via the process control room computer systems; detail all proposed actions to ensure the biofilter and pre-treatment system is maintained for operation in a proper and efficient manner including, but not limited to, frequency of replacement/replenishment of filter bed material; and identify mitigation actions to be taken in the event of breakdown and/or servicing of the biofilter and/or pre-treatment system.	Not Triggered	Not Triggered	N/A	N/A
<b>Operational Conditions</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C19. All waste receivable, processing, storage, and dispatch associated with the ARRT Facility must be completely enclosed within sealed buildings that are operated under negative pressure.	Not Triggered	Not Triggered	N/A	N/A
C20. The Applicant shall ensure all air captured through the ARRT Facility buildings are treated through a biofilter and approved pre-treatment system prior to discharge to atmosphere.	Not Triggered	Not Triggered	N/A	N/A
<b>Odour Audit</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>



C21. The Applicant shall conduct an odour audit of the ARRT Facility to validate the odour data used in the EIS. The odour audit shall: be prepared by an independent odour expert in consultation with the EPA and Council; be submitted to the EPA, Council and the Secretary within 6 weeks of commencement of operation of the ARRT Facility and again after 6 months of operation; include collection and analysis of odour samples in accordance with the EPA's Approved Methods for Sampling and Analysis of Air Pollutants in NSW; validate the efficiencies of the odour controls, including the biofilter(s) and pre- treatment system; demonstrate the final design achieves an equivalent or better performance than stated in the EIS, supported by dispersion modelling in accordance with EPA's Approved Methods for Sampling and Analysis of Air Pollutants in NSW, if required; and identify additional mitigation measures with a timeline for implementation, where odour performance significantly differs from the predictions in the EIS.	Not Triggered	Not Triggered	N/A	N/A
<b>GREENHOUSE GAS</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C22. The Applicant shall implement all reasonable and feasible measures to minimise energy use on site and greenhouse gas emissions produced on site.	Operational	Compliant	Cleanaway reports its energy use and greenhouse gas emissions under the National Greenhouse Gas and Energy Reporting Scheme (NGERs). This is done at the corporate level with input from the facilities.  The main method in which Cleanaway minimises greenhouse gas emissions is through the efficient operation of the gas infrastructure. The gas infrastructure installed on site collects landfill gas and converts it into electricity.	Monthly reports from EDL.
<b>LEACHATE Landfill — Dual Gas and Leachate Trench</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C23. The Applicant shall design and install a dual gas and leachate management trench near the perimeter of the re-profiled landfill to intercept sideways movement of leachate. The trench shall: be designed in accordance with the requirements of the EPA; be approved by the EPA, prior to construction of the trench and landfill re- profiling; include extraction risers along the length of the trench to allow extraction and transfer of leachate to the existing ring main; and be installed in accordance with a CEMP, prepared by a suitably qualified person and submitted to the EPA at least one month prior to construction of the trench	Development Phase	Compliant	CEMP, Part 1 – Landfill Related Construction works only, Dual Gas and Leachate Trench construction works, dated July 2017, and The Dual Gas and Leachate Trench Concept Design, to the EPA on the 20.07.17. The EPA provided a letter response, dated 10.10.17, which stated that the EPA has approved the installation.	Records held in on-site operations office.

Landfill Gas Infrastructure	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C24. The Applicant shall maintain and operate the landfill gas infrastructure on the site, at all times. The Applicant shall retain and operate the gas collection system within the prepared surface (stripped back cover) as much as practicable.	Operational	Compliant	EDL maintain gas infrastructure.  Quarterly surface gas monitoring as per Landfill EPL (EPL 5056).	Monthly Reports from EDL.
Operating Conditions	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C25. Accumulated sludge and sediment formed during leachate storage at the site shall be disposed of to a special waste area at the LHRRP, separate from the active tip face.	Operational	Compliant	No disposal in 2022	N/A
C26. The Applicant shall manage all water that comes into contact with waste at the GO Facility as leachate. Leachate generated at the GO Facility may only be reused in the composting process on site or disposed to sewer in accordance with a Trade Waste Agreement or as otherwise agreed in writing with the EPA.	Not Triggered	Not Triggered	N/A	N/A
C27. All leachate generated at the ARRT Facility must be stored indoors or in enclosed tanks and used in the ARRT composting process or transferred for disposal to a Facility lawfully permitted to receive it.	Not Triggered	Not Triggered	N/A	N/A
Leachate Monitoring	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C28. The Applicant shall routinely monitor leachate volumes from all sources and re-calibrate the leachate model included in the EIS, to ensure adequate storage, treatment and disposal capacity is maintained at all times. The Applicant shall report the results of on-going monitoring and model calibration every year in the Annual Review required under Condition D7.	Operational	Compliant	Monitoring of leachate volume is maintained by JPG.  Leachate Model was recalibrated by GHD in Feb 2020.	Monthly reports from JPG.
C29. The Applicant shall implement any recommended measures identified by leachate model calibrations to maintain adequate storage, treatment, and disposal capacity for the LHRRP at all times.	Operational	Compliant	Recalibration every 3 to 5 years.	N/A
SURFACE WATER & GROUNDWATER Discharge Limits	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C30. The Development shall comply with Section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.	Operational	Compliant	Sampling undertaken according to the requirements of EPL 5056.	Results submitted to EPA in Annual Return.
GO Facility	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
C31. The Applicant shall ensure excess water collected in the leachate dams at the GO Facility during high rainfall periods is transported off-site and disposed of lawfully or discharged to sewer in accordance with a Trade Waste Agreement.	Not Triggered	Not Triggered	N/A	N/A

C32. The Applicant shall prepare and submit a detailed design for managing surface water from roofs and breathable membrane covers at the GO Facility. The design shall:  (a) be approved by the EPA prior to the commencement of operation of the GO Facility; (b) demonstrate that surface water runoff from the roof and breathable membrane covers does not come into contact with waste; and (c) describe a program for on-going monitoring of the water quality discharged from the GO Facility to Mill Creek.	Not Triggered	Not Triggered	N/A	N/A
<b>Mill Creek</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C33. The Applicant shall prepare an Aquatic Habitat Monitoring Plan to monitor the stream health of Mill Creek within the site. The plan shall: be prepared by a suitably qualified and experienced person in consultation with DPI Water; be submitted to the Secretary prior to construction of the GO Facility and updated and re-submitted to the Secretary prior to construction of the ARRT Facility; describe the monitoring locations, frequency, and parameters to be measured; and detail the measures to be implemented if monitoring indicates the habitat quality of Mill Creek is decreasing as a result of activities on the site.  C34. The Applicant shall prepare a Mill Creek Stream Rehabilitation, Stabilization and Vegetation Management Plan. The plan shall: be prepared by a suitably qualified and experienced person in consultation with DPI Water; be submitted to the Secretary prior to construction of the GO and ARRT facilities; be prepared in accordance with DPI Water Guidelines for Controlled Activities on Waterfront Land; detail proposed stream realignment works including details of the measures to minimise water quality impacts; detail the proposed rehabilitation and stabilization of the stream including methods and staging of works; detail opportunities to maximise the width of riparian zones, particularly in the final landform design, and detail the vegetation types, maintenance, monitoring and performance criteria for the rehabilitation works; and be updated to include any changes to the rehabilitation objectives and staging approved in the Post Closure Plan for the site, required under Condition C40.	Not Triggered	Not Triggered	The Aquatic Habitat Monitoring Plan was prepared in April 2021, submitted and approved by the Department in June 2021.	N/A

Groundwater Management Plan C35. The Applicant shall prepare a Groundwater Management Plan for the site. The plan must: (a) be prepared by a suitably qualified and experienced person, in consultation with the EPA and DPI Water; (b) be submitted to the Secretary, prior to the commencement of construction; (c) detail the groundwater monitoring network including location and frequency of monitoring, the parameters for testing, relevant criteria, and trigger levels for action; (d) include a protocol for investigation, notification, and mitigation of any exceedances of the identified trigger levels; and (e) describe the measures that could be implemented to respond to identified groundwater contamination.	Operational	Compliant	SUEZ has prepared a Groundwater Management Plan (GMP), dated 31.01.18.  The plan was prepared by Douglas Partners, in consultation with the EPA and DPI. SUEZ met with DPI Water for a consultation meeting on the 28.07.17.  Further comments provided by DPIE Water in March 2020.  GMP was submitted to DPIE as part of the revised OEMP on 4 November 2021.	Ground Water monitoring results are reported to the EPA in the annual return.  Results are also published to the corporate website.
<b>Groundwater Monitoring</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C36. The Applicant shall re-establish historic groundwater monitoring bores (BH24, BH31, MB021 and MB022) to improve detection of leachate in groundwater systems to the north of the site. The Applicant shall monitor groundwater from these bores in accordance with the requirements of an EPL for the site and the groundwater management plan required under Condition C35.	Operational	Compliant	Report was sent to DPI Water in February 2018, while final sign off has not been approved there has been agreement that Monitoring wells have been replaced. A consent modification will be submitted for this change. Consent MOD 2 submitted on 21 December 2022.	
<b>Bunding</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C37. The Applicant shall store all chemicals, fuels and oils used on the site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's Storing and Handling of Liquids: Environmental Protection — Participants Handbook.	Operational	Compliant	Two 60,000 L diesel tank used for refueling collection vehicles and Select Civil Plant and equipment are both fully banded.	Monthly Site inspections.
<b>FINAL LANDFORM, REHABILITATION &amp; CLOSURE</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
<b>Final Landform</b>				
C38. The Applicant shall rehabilitate the site to achieve the final landform shown in Appendix C, in accordance with the criteria in the EPA's Environmental Guidelines: Solid Waste Landfills, 2016, or its latest version.	Not triggered	Not Triggered	N/A	N/A
C39. The Applicant shall ensure the height of the final landform does not exceed 179.9 metres Australian Height Datum (AHD) post-settlement of the waste mass and final capping, as described in the EIS.	Not triggered	Not Triggered	N/A	N/A
<b>Post-Closure Plan</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>



C40. The Applicant shall amend the draft Post-Closure Plan for the site, to the satisfaction of the Secretary. The plan shall: be prepared by a suitably qualified and experienced person; be submitted to the EPA and the Secretary 12 months prior to the planned closure of the landfill, GO and ARRT Facilities on the site; be approved by the EPA, Council, ANSTO and the Secretary, prior to commencement of the final phase of landfill capping and rehabilitation works; detail the requirements for on-going management of the capped waste mass; describe monitoring and management measures to ensure integrity of the cap; describe on-going leachate and surface water management, odour and dust control; detail landfill gas monitoring and maintenance; identify future land uses on the site, developed in consultation with Council, ANSTO, the Cronulla Model Aero Club and local recreational and sporting groups; include a rehabilitation management plan, including, but not limited to: rehabilitation works as generally depicted in Appendix C; criteria for evaluating the effectiveness of the rehabilitation; a program and schedule to monitor the effectiveness of the rehabilitation; a program and schedule for routine maintenance of the rehabilitation; any remedial actions necessary to ensure the success of the rehabilitation; a weed management plan; and incorporate the post closure requirements detailed in the VPA	Not Triggered	Not Triggered	N/A	N/A
<b>VISUAL AMENITY</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C41. The Applicant shall undertake screen planting as shown on the plan in Appendix D to minimise the visual impacts of the Development. The planting shall be completed by January 2025, subject to agreement with ANSTO for works on ANSTO's land. Evidence of implementation of the planting shall be provided to the satisfaction of the Secretary, within one month of completing the planting.	Not Triggered	Not Triggered	N/A	N/A
C42. The Applicant shall progressively hydro-mulch and grass completed landfill areas to minimise the visual impacts of the Development.	Not Triggered	Not Triggered	N/A	N/A
<b>BIODIVERSITY Construction</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>

C43. The Applicant shall prepare a Vegetation and Fauna Management Plan to minimise impacts on biodiversity during construction of the GO and ARRT facilities, to the satisfaction of the Secretary. The plan shall: be prepared by a suitably qualified and experienced ecologist; be submitted to the Secretary, prior to the commencement of construction of the GO and/or ARRT Facility, whichever is sooner; include a vegetation clearing protocol and pre-clearance surveys; detail specific procedures for protecting native vegetation, including the Coastal Upland Swamp, and fauna adjacent to construction areas, including the access track near the GO Facility, the sediment pond north of the ARRT Facility and the verge adjacent to Heathcote Road; detail erosion and sediment controls and weed management procedures; and include procedures for seed collection and translocation of key species, including Allocasuarina diminuta subsp. Mimica and Acacia bynoeana.	Not Triggered	Not Triggered	The Vegetation and Fauna Management Plan was prepared in April 2021, submitted and approved by the Department in June 2021.	N/A															
<b>Biodiversity Offset Strategy</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>															
C45. The Applicant shall purchase and retire the ecosystem and species credits listed in Table 1, in accordance with OEH's Frameworks for Biodiversity Assessment 2014 and the NSW Biodiversity Offsets Policy for Major Projects 2014, to the satisfaction of the Secretary. The credits shall be purchased and retired prior to construction of the relevant facility listed in Table 1,	Developmental Phase	Compliant	Biodiversity credits were purchased in 2022 for the GO Facility. Credits have not been purchased for the ARRT Facility.	Biodiversity credits															
<p><b>Table 1: Biodiversity Offset Strategy</b></p> <table><tr><th>Facility</th><th>No. of Credits</th><th>Offset Type</th></tr><tr><td rowspan="2">GO Facility</td><td>185 ecosystem</td><td>Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux</td></tr><tr><td>97 species</td><td>Eastern Pygmy-possum</td></tr><tr><td rowspan="3">ARRT Facility</td><td>143 ecosystem</td><td>Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux</td></tr><tr><td>88 species</td><td>Eastern Pygmy-possum</td></tr><tr><td>5154 species</td><td>Allocasuarina diminuta subsp. mimica</td></tr></table>					Facility	No. of Credits	Offset Type	GO Facility	185 ecosystem	Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux	97 species	Eastern Pygmy-possum	ARRT Facility	143 ecosystem	Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux	88 species	Eastern Pygmy-possum	5154 species	Allocasuarina diminuta subsp. mimica
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C46. The Applicant shall not commence construction of a facility listed in Table 1, until the Biodiversity Offset Strategy for that facility has been implemented, to the satisfaction of the Secretary.	Developmental Phase	Compliant	Excavation for the GO Facility commenced in January 2023, biodiversity credits were purchased for the GO Facility in 2022.	Biodiversity credits															
C47. The Applicant shall ensure the biodiversity offsets are secured by a conservation mechanism, which protects and manages the land in perpetuity, to the satisfaction of the Secretary.	Operational	Compliant	The biodiversity offset strategy was approved by DPIE on 30 November 2022	Biodiversity credits															

TRANSPORT AND ACCESS	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<b>Construction Traffic Management Plan</b>				
C48. The Applicant shall prepare a Construction Traffic Management Plan for construction of the GO and ARRT facilities. The plan shall: be prepared by a suitably qualified and experienced expert, in consultation with Council and RMS; be submitted to the Secretary, prior to the commencement of construction of the GO and/or ARRT Facility; detail the measures to be implemented to ensure road safety and network efficiency during construction; detail heavy vehicle routes, access, and parking arrangements; include a Driver Code of Conduct to: • minimise the impacts of construction works on the local and regional road network; • minimise conflicts with other road users; • ensure truck drivers use specified routes; include a program to monitor the effectiveness of these measures; and if necessary, detail procedures for notifying residents and the community, of any potential disruptions to routes.	Not Triggered	Not Triggered	The Construction Traffic Management Plan was prepared in May 2021, submitted and approved by the Department in June 2021.	N/A
<b>Intersection Safety Review</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C49. The Applicant shall conduct a safety review of the Little Forest Road and New Illawarra Road intersection in the years 2020 and 2025 to ensure the on-going safe and efficient performance of the intersection. The safety reviews shall be prepared to the satisfaction of the Secretary and shall: be prepared by an independent traffic expert; be undertaken in consultation with Council and RMS and in accordance with relevant guidelines; (c) be approved by the Secretary and RMS, by the end of 2020 and 2025; analyse vehicle movements and delays during peak periods; establish intersection performance and the need for any intersection upgrade works; and include a program for implementation of intersection upgrade works, if required.	Operational	Non-Compliant	Report submitted on 27 Jan 2021 rather than by end of 2020. Approval from DPIE received on 17 Feb 2021.	N/A
C50 The Applicant shall implement the recommendations of the safety reviews, including any required intersection upgrades, to the satisfaction of the Secretary and RMS. The timing and payment for implementation of any required intersection upgrades shall be agreed with the Secretary and RMS.	Operational	Compliant	No upgrading works have been proposed.	N/A
<b>Operating Conditions</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C51. The Applicant shall ensure: all staff vehicles, plant and equipment are parked on site and do not park on the public road network; all loading and unloading of materials is carried out on site; all trucks entering or leaving the site with loads have their loads covered; vehicles do not track dirt onto the public road network; and heavy vehicles use designated routes to minimise impacts on the local and regional road network.	Operational	Compliant	There is no offsite parking. Street sweeper in regular use, Site inspections, Traffic control, signage Weighbridge operators monitor vehicles entering and leaving site.	Site inspections.

Parking	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																															
C52. The Applicant shall provide sufficient parking facilities for site personnel and heavy vehicles on the site, to ensure traffic associated with the site does not utilise public and residential streets or public parking facilities.	Operational	Compliant	Weighbridge operator direct vehicles to correct location, public drop off area maned to direct traffic.	Site inspections.																															
NOISE Hours of Work	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																															
C53. The Applicant shall comply with the hours detailed in Table 2, unless otherwise agreed in writing by the EPA or the Secretary.	Operational	Compliant	Controlled by weighbridge opening hours. Temporary approval for landfill to extend it's hours of operation from 3am-5pm has been granted by DPE and EPA.	Weighbridge records, temporary approval from DPE and EPA.																															
Table 2: Hours of Work	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																															
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Operational Noise Limits	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																																				
C54. The Applicant shall ensure noise from the site does not exceed the noise limits in Table 3.	Operational	Compliant	No excessive noise generated.	Annual noise survey undertaken.																																				
<p><b>Table 3: Noise Limits dB(A)</b></p> <table><tr><th>No.</th><th>Location</th><th>Day Leq(15min) n)</th><th>Evening Leq(15min) n)</th><th>Night Leq(15min) n)</th><th>Night Lt(1min)</th></tr><tr><td>R1</td><td>Engadine</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>R2</td><td>Barden Ridge</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>R3</td><td>Menai</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>R6</td><td>Gandangara</td><td>37</td><td>37</td><td>37</td><td>45</td></tr><tr><td>R7</td><td>Gandangara North</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table>					No.	Location	Day Leq(15min) n)	Evening Leq(15min) n)	Night Leq(15min) n)	Night Lt(1min)	R1	Engadine	35	35	35	45	R2	Barden Ridge	35	35	35	45	R3	Menai	35	35	35	45	R6	Gandangara	37	37	37	45	R7	Gandangara North	35	35	35	45
No.	Location	Day Leq(15min) n)	Evening Leq(15min) n)	Night Leq(15min) n)	Night Lt(1min)																																			
R1	Engadine	35	35	35	45																																			
R2	Barden Ridge	35	35	35	45																																			
R3	Menai	35	35	35	45																																			
R6	Gandangara	37	37	37	45																																			
R7	Gandangara North	35	35	35	45																																			
Note: • To identify a noise receiver location, refer to the figure in Appendix E.																																								
Noise generated on the site is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the EPA's NSW Industrial Noise																																								
Noise Management	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																																				
C55. The Applicant shall implement the noise management measures described in the OEMPs for the LHRRP, GO and ARRT facilities to ensure noise from the site complies with the limits in Table 3.	Operational	Compliant	Select Civil Daily Site inspections for landfill. GO and ARRT not triggered.	Annual noise survey undertaken.																																				
Noise Monitoring	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																																				
C56. The Applicant shall monitor noise from the site to demonstrate compliance with the noise limits in Table 3. The monitoring shall be: undertaken annually, or to address genuine noise complaints that are related to the site as determined by the EPA or the Secretary; in accordance with the NSW Industrial Noise Policy, and reported to the EPA and the Secretary within one month of completing the monitoring, including details of management actions taken and the effectiveness of the actions to address any exceedances of the limits in Table 3.	Operational	Compliant	Select Civil Daily Site inspection and 3 <sup>rd</sup> party consultant engaged to complete Noise Monitoring.	Annual noise survey undertaken.																																				
LITTER & PEST CONTROL	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS																																				
C57. The Applicant shall:																																								
(a) ensure all waste loads are covered;	Operational	Compliant	Weighbridge operators inspect loads.																																					
(b) inspect and clear the site (and if necessary, surrounding area) of litter arising from the Development on a daily basis; and	Operational	Compliant	Select Civil Daily Site inspections.	Inspection Reports.																																				
(c) maintain the site in a clean and tidy state at all times.	Operational	Compliant	Select Civil Daily Site inspections and litter pickets regularly engaged.	Inspection Reports.																																				

C58. The Applicant shall:				
(a) implement measures to manage pests, vermin and declared noxious weeds on site; and	Operational	Compliant	Routine exterminator inspections and baiting.	Pest exterminator reports.
(b) inspect the site routinely to ensure the measures are effective, and pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.	Operational	Compliant	Routine exterminator inspections and baiting	Pest exterminator reports.
Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.				
<b>HERITAGE</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
<b>Unexpected Finds Protocol</b>				
C59. If Aboriginal objects are uncovered during construction, work in the immediate area must stop and the Regional Operations Group of the OEH, Council and the Registered Aboriginal Parties are to be consulted.	Not Triggered	Not Triggered	N/A	N/A
C60. If any archaeological relics are uncovered during the course of the work, then all works shall cease immediately in that area and the OEH Heritage Branch contacted. Depending on the possible significance of the relics, an archaeological assessment and an excavation permit under the NSW Heritage Act 1977 may be required before further works can continue in that area.	Not Triggered	Not Triggered	N/A	N/A
<b>Site Impact Recording</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C61. Within one month of the date of this consent, the Applicant shall submit Site Impact Recording Forms to OEH for the four previously impacted Aboriginal heritage sites, AHIMS 52-2-1108, 52-2-1029, 52-2-1030 and 52-2-1031, as described in the EIS.	Pre-Construction	Compliant	Site has been inspected no further action required.	These were submitted to OEH Heritage 7 April 2017.
<b>FIRE PREVENTION &amp; MANAGEMENT</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
C62. The Applicant shall:				
(a) design and construct the GO and ARRT Facility buildings to meet the fire safety requirements of the BCA; and	Not Triggered	Not Triggered	N/A	N/A
(b) maintain a 10-metre-wide Asset Protection Zone around the northern and western sides of the GO and ARRT Facility buildings.	Not Triggered	Not Triggered	N/A	N/A
C63. The Applicant shall prepare an Emergency Response Plan for the site detailing procedures to be implemented in the event of a fire on or near the site. The Emergency Response Plan shall:				
(a) be prepared by a suitably qualified and experienced expert in consultation with Council and the NSW Rural Fire Service;	Operational	Compliant	Annual Review of ERP.	Operations Office.
(b) be submitted to the Secretary within three months of the date of this consent, or an alternative timing as otherwise agreed with the Secretary; and	Operational	Compliant	Revised ERP approved by DPIE on 4/11/2022.	Operations Office.

(c) detail emergency access and egress routes, including an alternative access route, escape routes, refuge areas, assembly points and evacuation procedures.	Operational	Compliant	Annual Review of ERP.	Operations Office.
<b>SCHEDULE D</b>				
<b>ENVIRONMENTAL MANAGEMENT, REPORTING, AUDITING AND COMMUNITY ENGAGEMENT</b>	<b>DEVELOPMENT PHASE</b>	<b>STATUS</b>	<b>MONITORING METHODOLOGY</b>	<b>EVIDENCE AND COMMENTS</b>
<b>ENVIRONMENTAL MANAGEMENT</b>				
<b>Construction Environmental Management Plan</b>				
D1. The Applicant shall prepare a Construction Environmental Management Plan (CEMP) for the Development, to the satisfaction of the Secretary. The Plan must:	Pre-construction	Compliant and Not Triggered for ARRT	CEMP for Dual Leachate and Gas Trench submitted to DoP on 17.7.18. CEMP for GO approved by DPIE on 13/9/2021.	
(a) be prepared in consultation with Council and be approved by the Secretary prior to construction of the Development;	Pre-construction	Compliant	SSC comments included in the CEMP.	
(b) identify the statutory approvals that apply to the site;	Pre-construction	Compliant	N/A	N/A
(c) outline all environmental management practices and procedures to be followed during construction;	Pre-construction	Compliant	N/A	N/A
(d) describe all activities to be undertaken on the site during construction, including a clear indication of construction stages;	Pre-construction	Compliant	N/A	N/A
(e) detail how 'the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;	Pre-construction	Compliant	N/A	N/A
(f) describe the roles and responsibilities for all relevant employees involved in construction works; and	Pre-construction	Compliant	N/A	N/A
(g) include the management plans under Condition D2 of this consent.	Pre-construction	Compliant	N/A	N/A
D2. As part of the CEMP for the Development, required under Condition D1 of this consent, the Applicant shall include the following:	Pre-construction	N/A	N/A	N/A
(a) a construction management plan for the dual gas and leachate trench prepared in consultation with EPA (Condition C23);	Operational	Compliant	Site inspections, management meeting with Select Civil.	Approval from DoP.
(b) an erosion and sediment control plan;	Operational	Compliant	N/A	N/A
(c) a vegetation and fauna management plan (Condition C43); and	Operational	Compliant	N/A	N/A
(d) a construction traffic management plan (Condition C48).	Operational	Compliant	N/A	N/A
D3. The Applicant shall carry out construction of the Development in accordance with the CEMP approved by the Secretary and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.	Operational	Compliant	For leachate and gas cutoff trench: Site inspections, management meeting with Select Civil. For the Organics area: site inspection, management meeting with Morris Civil. Not triggered for ARRT.	Approval from DoP.

Operational Environmental Management Plan	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
D4. The Applicant shall amend the draft Operational Environmental Management Plan (OEMP) for the Landfill, GO and ARRT Facilities, to the satisfaction of the Secretary. The Plans must:	Pre-construction	Compliant and Not Triggered for GO and ARRT	The LHRRP OEMP, dated 13.10.17 and relates to activities associated with landfilling and re-profiling. GO Facility or ARRT have not been installed, DPE approved this staged preparation of the OEMPs in a letter dated 22.02.18. Revised landfill OEMP submitted on 4/11/2021.	N/A
(a) be prepared in consultation with Council and be approved by the Secretary prior to operation of the Development;	Pre-construction	Compliant	The OEMP was submitted to the DPE via email on the 23.08.17. Revised landfill OEMP submitted on 4/11/2021.	N/A
(b) identify the statutory approvals that apply to the site;	Pre-construction	Compliant	The OEMP states that it has been prepared to address the following statutory requirements: SSD 6835; EPL 5065; ANSTO Lease; VPA.	N/A
(c) outline all environmental management practices and procedures to be followed during operation:	Pre-construction	Compliant	The OEMP includes a number of sections on the environmental management of the Site including surface water, leachate, landfill gas, odour, dust, litter, noise, weeds, traffic, and emergency preparedness.	Site Records, EPA Annual Returns.
(d) detail how the environmental performance of the Development will be monitored, and what actions will be taken to address identified adverse environmental impacts; and	Pre-construction	Compliant	Daily site inspections, Environmental Monitoring as per EPL.	Site Records, EPA Annual Returns.
(e) include the management plans under Condition D5 of this consent.		Compliant	OEMP for overtopping approved by DPIE. OEMP for GO and ARRT not triggered.	
D5. As part of the OEMP's for the Development, required under Condition D4 of this consent, the Applicant shall include the following:				
(a) site air quality and odour management plan (Condition C11);	Pre-construction	Compliant	Odour Patrols, Dust Monitoring, Site inspections.	Records held in operations office.
(b) ARRT Facility air quality and odour management plan (Condition C17);	Not Triggered	Not Triggered	N/A	N/A
(c) biofilter and pre-treatment monitoring and maintenance plan (Condition C18);	Not Triggered	Not Triggered	N/A	N/A
(d) aquatic habitat monitoring plan (Condition C33);	Not Triggered	Not Triggered	N/A	N/A
(e) Mill Creek stream rehabilitation, stabilization, and vegetation management plan (Condition C34);	Not Triggered	Not Triggered	N/A	N/A
(f) groundwater management plan (Condition C35); and	Operational	Compliant	Refer to C35	N/A
(g) emergency response plan (Condition C63).	Operational	Compliant	Annual Review.	Correspondence with Rural Fire Brigade - records are held in Operations Office.



D6. The Applicant shall operate the Development in accordance with the OEMP's approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.	Operational	Compliant	OEMP in operation	
Management Plan Requirements	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<p>D7. The Applicant shall ensure the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>(a) detailed baseline data;</li> <li>(b) a description of: <ul style="list-style-type: none"> <li>the relevant statutory requirements (including any relevant approval, licence, or lease conditions);</li> <li>any relevant limits or performance measures/criteria; and</li> <li>the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures;</li> </ul> </li> <li>(c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</li> <li>(d) a program to monitor and report on the: impacts and environmental performance of the Development; and effectiveness of any management measures (see (c) above);</li> <li>(e) a contingency plan to manage any unpredicted impacts and their consequences;</li> <li>(f) a program to investigate and implement ways to improve the environmental performance of the Development over time;</li> <li>(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>incidents;</li> <li>complaints;</li> <li>non-compliances with statutory requirements; and</li> <li>exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul> a protocol for periodic review of the plan. Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans. </li> <li>(h) A protocol for periodic review of the plan</li> </ul>	Operational	Compliant	CWY Systems Audits, BSI Certification Audits.	BSI Certification.

Revisions to Strategies, Plans and Programs	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
D8. Within three months of:				
(a) an audit submitted under Condition D12;	Not Triggered	Not Triggered	N/A	N/A
(b) an incident report under Conditions D10 and D11;	Not Triggered	Not Triggered	N/A	N/A
(c) an annual review under Condition D9; and/or	Not Triggered	Not Triggered	N/A	N/A
(d) a modification to this consent,	Operational	Compliant	Change of operation hours.	N/A
The Applicant shall review, and if necessary, revise the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the site.	N/A	N/A	N/A	N/A
REPORTING	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<b>Annual Review</b>				
D9_ By the end of December each year, and annually thereafter, the Applicant shall review the environmental performance of the site, to the satisfaction of the Secretary. This review must:	Operational	Compliant	Preparation and submission of the report is managed by the Cleanaway Due Diligence Calendar.	Internal audit prepared submitted to DoP and placed on public Website.
Be submitted to the Secretary by the end of February each year	Operational	Complaint	This AEMR.	AEMR submitted via Planning Portal.
Describe the operations that were carried out in the past year	Operational	Complaint	Section 3	N/A
Analyse the monitoring results and complaints records of the site over the past year, including a comparison of these results against the: Relevant statutory requirements, limits, or performance measures/criteria Monitoring results of previous years Predictions in the EIS;	Operational	Complaint	Section 6-9	N/A
Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance	Operational	Complaint	Section 2	N/A
Identify any trends in the monitoring data	Operational	Complaint	Section 6-9	N/A
Identify any discrepancies between the impacts predicted in the EIS and the actual impacts of the site and analyse the potential cause of any significant discrepancies; and	Operational	Complaint	Section 6-9	N/A
Describe what measure will be implemented over the next year to improve the environmental performance of the site	Operational	Complaint	Section 11	N/A

Incident Reporting	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
D10. Upon detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall immediately (or as soon as practical thereafter) notify the Secretary and any other relevant agencies of the exceedance/incident.	Operational	Non-Compliant	Exceed limit B6(a)  850,000 tonnes of general solid waste (putrescible and non-putrescible) and asbestos waste per year on site for landfill disposal  Received 978,126 tonnes in 2022 Notification of exceedance submitted to DPIE on 12/01/2022 and 24/01/2022.  One notification to DPIE on 23 March 2022 for contaminated surface water discharge.	N/A
D11 Within seven days of the date of the incident, the Applicant: shall provide the Secretary and any relevant agencies with a detailed report on the incident. and such further reports as may be requested.	Operational	Compliant	Report submitted on 18/02/2022.	N/A
INDEPENDENT ENVIRONMENTAL AUDIT	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
D12. Within one year of the date of this consent, and every three years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the site. The audit must: be carried out by a suitably qualified, experienced and independent audit team whose appointment has been endorsed by the Secretary; assess the environmental performance of the site, and its effects on the surrounding environment; determine whether the site is complying with the relevant standards, performance measures and statutory requirements; review the adequacy of the Environmental Management Plans for the site, compliance with this consent, and any other licences and consents; and, if necessary, recommend measures or actions to improve the environmental performance of the site, and/or any plan/program required under this consent.	Operational	Compliant	Preparation and submission of the report is managed by the Cleanaway Due Diligence Calendar.  An Independent Audit was prepared by AECOM and Submitted to the Department in 2021. The next audit will be done in early 2024.	N/A
D13. Within three months of commissioning the audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary with a response to all recommendations contained in the audit report.	Operational	Compliant	As above.	Report submitted to DoP.
COMMUNITY ENGAGEMENT	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS
<b>Community Reference Group</b>				
D14. The Applicant shall establish and maintain a Community Reference Group (CRG) to maintain regular communication with the local community regarding activities on the site, any environmental impacts, monitoring results and management actions. The CRG shall include representatives from the local community, recreational and sporting clubs, ANSTO, Council and the Applicant. The CRG shall meet on a quarterly basis.	Operational	Compliant	Due Diligence Calendar.	Meeting Records.
Access to Information	DEVELOPMENT PHASE	STATUS	MONITORING METHODOLOGY	EVIDENCE AND COMMENTS

<p>D15. The Applicant shall make the following information publicly available on its website and keep the information up to date.</p> <p>(a) the EIS, RTS, CEMP and OEMPs;  (b) current statutory consents, approvals and licences for the site;  (c) approved strategies, plans and programs;  (d) a summary of all monitoring data for the site as required under this consent;  (e) a complaint register, updated on an annual basis;  (f) Annual Reviews, Independent Environmental Audits and the Applicant's response to the recommendations; and  (g) any other matter required by the secretary.</p>	Operational	Compliant	Annual Review of Consent.	Document can be viewed at: <a href="https://www.cleanaway.com.au/about-us/environmental-management/">https://www.cleanaway.com.au/about-us/environmental-management/</a>
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## 5. Independent Environmental Audit (IEA) report 2021, Non – Conformance Close Out

From the Independent Environmental Audit of the Project Approval and Environment Protection Licences, which was undertaken in 2021 a total of 98 conditions were assessed, with 11 Non-Conformances as below.

Title Condition Number	Auditors Recommendations	Action Required	Status
SSD 6835, B6	<b>2021 IEA REC 12</b> Implement processes to periodically review / track the cumulative quantity of waste received throughout the calendar year to ensure tonnages prescribed in CoC B6 are not exceeded	The amount of waste received at the drop off area to be reviewed / tracked monthly.	Implemented and Ongoing.
SSD 6835, B10	<b>2021 IEA REC 13</b> Implement recommendations in the BCA Advice report prepared by Concise Certification, dated 2 June 2021	Obtain BCA certification	Certification obtained on 2 September 2021.
SSD 6835, C8	No recommendations required	N/A	N/A
SSD 6835, C11A	<b>2021 IEA REC 14</b> Update AQOMP in accordance with Condition 11A and submit to DPIE	Update AQOMP	Revised report submitted and approved by DPIE on 4 November 2021.



Title Condition Number	Auditors Recommendations	Action Required	Status
SSD 6835, C36	<b>2021 IEA REC 15</b> Obtain DPIE approval of alternative bore locations	To submit consent modification	DPI Water approved the installation of new bores rather than re-establishing the old bores. Installation of new bores completed in 2017.  Consent MOD 2 submitted on 21 December 2022
SSD 6835, C37	<b>2021 IEA REC 04</b> Review liquid storage at the Select Civil Workshop area and ensure adequate bunding is provided	To review liquid storage at the workshop	Review completed and in compliance with the requirements
SSD 6835, C49	<b>2021 IEA REC 16</b> Obtain TfNSW (RMS) approval of the Intersection Safety Review for 2020	To submit request to TfNSW	TfNSW confirmed that they would provide comments only, not approval.
SSD 6835, D8	<b>2021 IEA REC 17</b> Implement a process to ensure management plans are reviewed (and revised if necessary) following a reportable incident, Annual Review and/or Modification to the consent. Ensure the review process is documented, in particular where plans are reviewed but do not require revision.	To implement a process for the review of management plans	Actions raised in Myosh

Title Condition Number	Auditors Recommendations	Action Required	Status
SSD 6835, D10	<b>2021 IEA REC 18</b> Implement a process to ensure the Department is notified immediately of any exceedance of trigger values or limits	To notify DPIE immediately for any exceedance of trigger values and limits	Ongoing
SSD 6835, D12	<b>2021 IEA REC 19</b> Ensure IEAs are conducted within 3 years	To conduct IEAs every 3 years	Ongoing – Next IEA due in 2024
SSD 6835, D15	<b>2021 IEA REC 20</b> Ensure all the documents required by Condition D15 are uploaded onto the Cleanaway website	To upload all documents to the Cleanaway website	Completed. Please refer to link:  <a href="https://www.cleanaway.com.au/about-us/environmental-management/">https://www.cleanaway.com.au/about-us/environmental-management/</a>

## 6. Environmental Incident Reports

The following table includes Incidents which occurred during 2022.

Title	Incident Date	Agencies notified	Regulatory outcomes	Did a non-compliance occur?	Details	Measures Implemented
Notice of sediment dam overflow	19/03/2022	NSW DPIE, EPA	NIL	Yes	The sedimentation dam went into overflow on 19/03/2022 at approximately 0900 with potentially elevated ammonia concentrations, on 21/03/2022 contaminated water was found in the stormwater drain leading to the sedimentation dam around 0700 which had been in overflow since the 19 <sup>th</sup> . The EPA was notified on 21/03/2022.	Pumps were turned on 21/02/2022 at 0730 to prevent further overflow of the sedimentation dam, samples were taken from MC1 for laboratory analysis. Ammonia results were below the EPL discharge limit at 1.2ppm. The water within the sedimentation dam is being treated as leachate and the source of the contamination was identified to be from seepages from the waste batter in Area G. Seepages were then diverted into the nearby leachate cut-off trench.

## 7. Complaints

Cleanaway receives environmental complaints from the following sources:

- Direct complaint from a member of public.
- Environmental Reporting Hotline operated 24 hours 7 days a week.
- Environmental Protection Authority (EPA).

A total of 23 odour complaints and 1 noise complaint were received during 2022, giving a total of 24 complaints for 2022.

Incident Date	Reported Date	Title	Address	Location	Status	Details
20/03/2022	21/03/2022	Odour complaint	1 Jacobs Close, Menai	Lucas Heights Landfill	Completed	Resident calling for odour complaint. Did not want to give her name. Please contact customer with findings.
30/03/2022	30/03/2022	Odour complaint	Barrett Street, Barden Ridge	Lucas Heights Landfill	Completed	A complaint was received from a resident in Barden Ridge regarding odour that was ongoing for several weeks. The resident reported that they were feeling nauseous and were unable to do outdoor activities.
2/04/2022	2/04/2022	Odour complaint	Lucas Heights	Lucas Heights Landfill	Completed	Wet Rubbish
20/04/2022	20/04/2022	Odour complaint	Barden Ridge	Lucas Heights Landfill	Completed	rotting odour, like rotten eggs or a strong garbage bin smell
20/04/2022	20/04/2022	Odour complaint	Lucas Heights	Lucas Heights Landfill	Completed	Rubbish smell
20/04/2022	20/04/2022	Odour complaint	Not given	Lucas Heights Landfill	Completed	Odour
20/04/2022	20/04/2022	Odour complaint	1 James Close Menai	Lucas Heights Landfill	Completed	Garbage
21/04/2022	21/04/2022	Odour complaint	Not given	Lucas Heights Landfill	Completed	Foul rubbish and maybe even methane
21/04/2022	21/04/2022	Odour complaint	Alison Cres Menai	Lucas Heights Landfill	Completed	wet compost/rotting food waste/green waste
23/04/2022	23/04/2022	Odour complaint	Barden Ridge	Lucas Heights Landfill	Completed	Garbage/Gas
26/04/2022	26/04/2022	Odour complaint	Barden Ridge	Lucas Heights Landfill	Completed	Garbage/Gas
26/04/2022	26/04/2022	Odour complaint	Maquarie Fields	Lucas Heights Landfill	Completed	Odour
2/05/2022	2/05/2022	Odour complaint	Lucas Heights	Lucas Heights Landfill	Completed	Wet waste odour
3/05/2022	3/05/2022	Odour complaint	Lucas Heights	Lucas Heights Landfill	Completed	Odour
5/05/2022	5/05/2022	Odour complaint	Lucas Heights	Lucas Heights Landfill	Completed	An odour complaint was received from a resident.
24/05/2022	24/05/2022	Odour complaint	2 Recreation Drive, Barden Ridge	Lucas Heights Landfill	Completed	Odour in early AM's and late arvos
24/05/2022	24/05/2022	Odour complaint	N/a	Lucas Heights Landfill	Completed	Odour
23/06/2022	23/06/2022	Odour complaint	Woronora Heights	Lucas Heights Landfill	Completed	Odour
29/06/2022	29/06/2022	Odour complaint	Woronora Heights	Lucas Heights Landfill	Completed	Odour
12/07/2022	12/07/2022	Odour complaint	Barden Ridge	Lucas Heights Landfill	Completed	Odour
28/07/2022	28/07/2022	Odour complaint	Bangor	Lucas Heights Landfill	Completed	Over 24hrs of unpleasant smell
28/07/2022	29/07/2022	Odour complaint	Bangor	Lucas Heights Landfill	Completed	Odour
5/08/2022	5/08/2022	Odour complaint	Woronora Heights	Lucas Heights Landfill	Completed	Odour
8/12/2022	8/12/2022	Noise complaint	New Illawarra Road, Lucas Heights	Gas generator plant	Completed	EPA received a complaint regarding noise and vibrations generated from a pump in Barden Ridge which is affecting the resident on New Illawarra Road throughout the night and early hours of the morning. The noise may be coming from the gas generator plant running multiple gas driven generators.

All complaints received were logged within the site complaints register and moving forward (i.e. late 2022 onwards) all complaints shall also be logged within the Cleanaway MYOSH Safety Management Software. Following receiving a complaint it is investigated to determine the validity, actions are assigned to improve performance and feedback is provided.

Figure 1. Complaints by locations - 2022

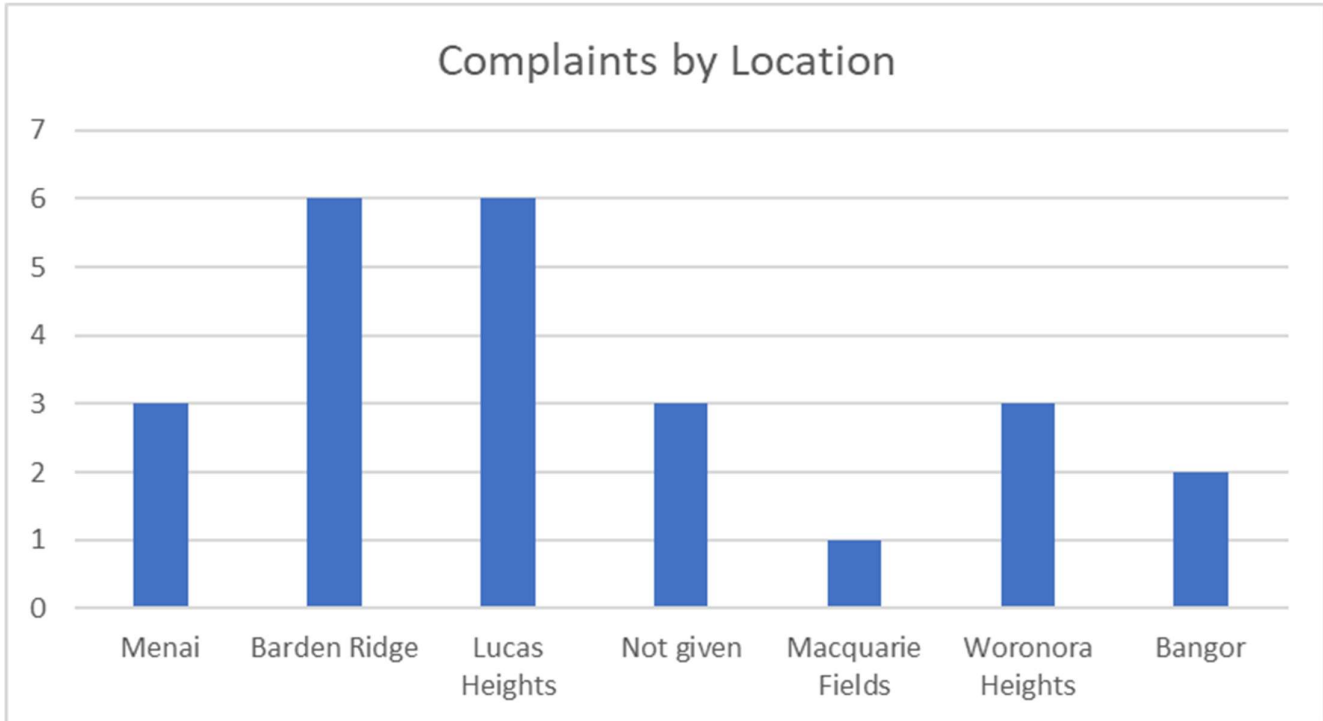
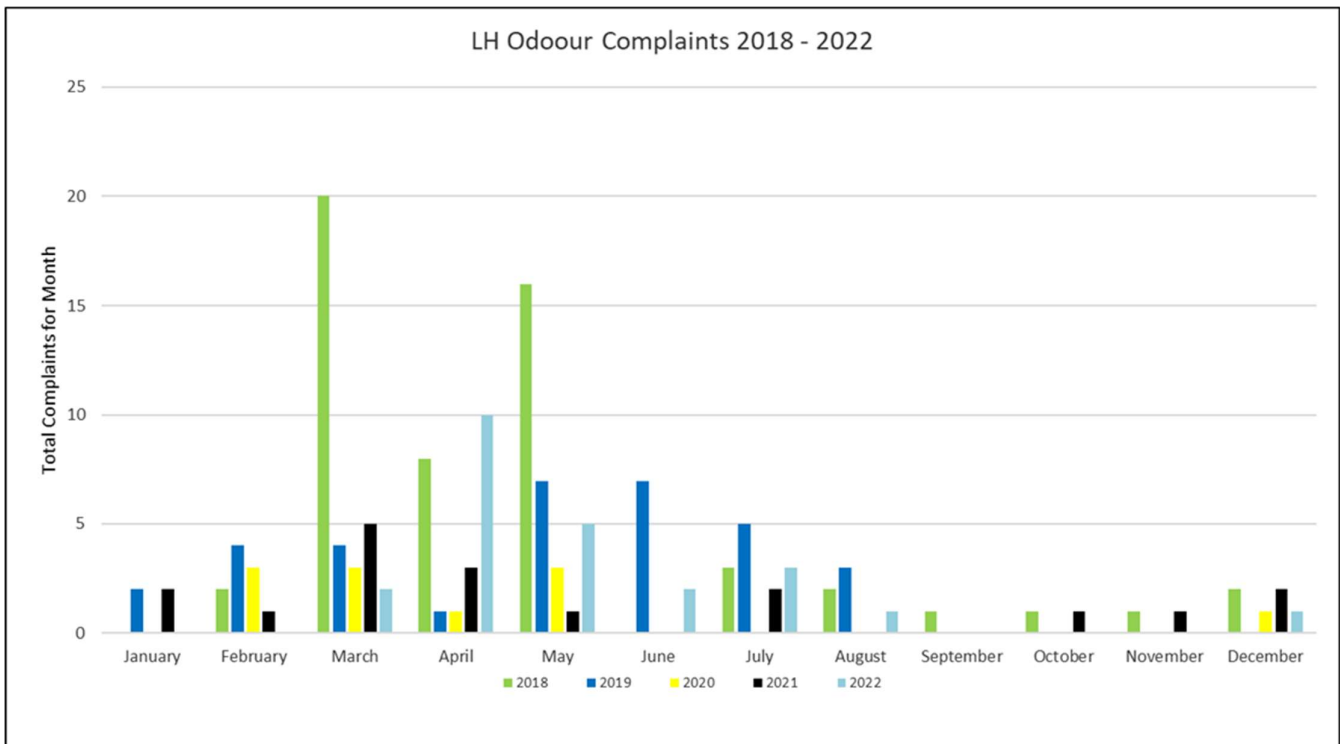


Figure 3. Odour Complaints 2018-2022





## 8. Assessment Criteria

This AEMR has been undertaken in accordance with Development Consent SSD 6835, Condition D9 and the following associated licences and/or Management Plans:

- DA SSD 6835, EPL 5065, ERP OEMP, PIRMP, AQOMP, GMP, Surface and sub surface gas monitoring plan, TMP, CRG, and VPA.

## 9. Environmental Monitoring

### 9.1. Landfill Gas Management

#### 9.1.1. Subsurface Gas

A monitoring program was submitted to the NSW EPA in 2006. The program has since been accepted and referenced in the EPL 5065 section M8.2.

Subsurface Gas Monitoring is therefore conducted in accordance with EPL Section P1.1. Any exceedances above 1.25% volume/volume are reported to the NSW EPA within 24 hours of results being received. Note, the exceedance level was lowered to 1% (v/v) methane on 7 December 2017.

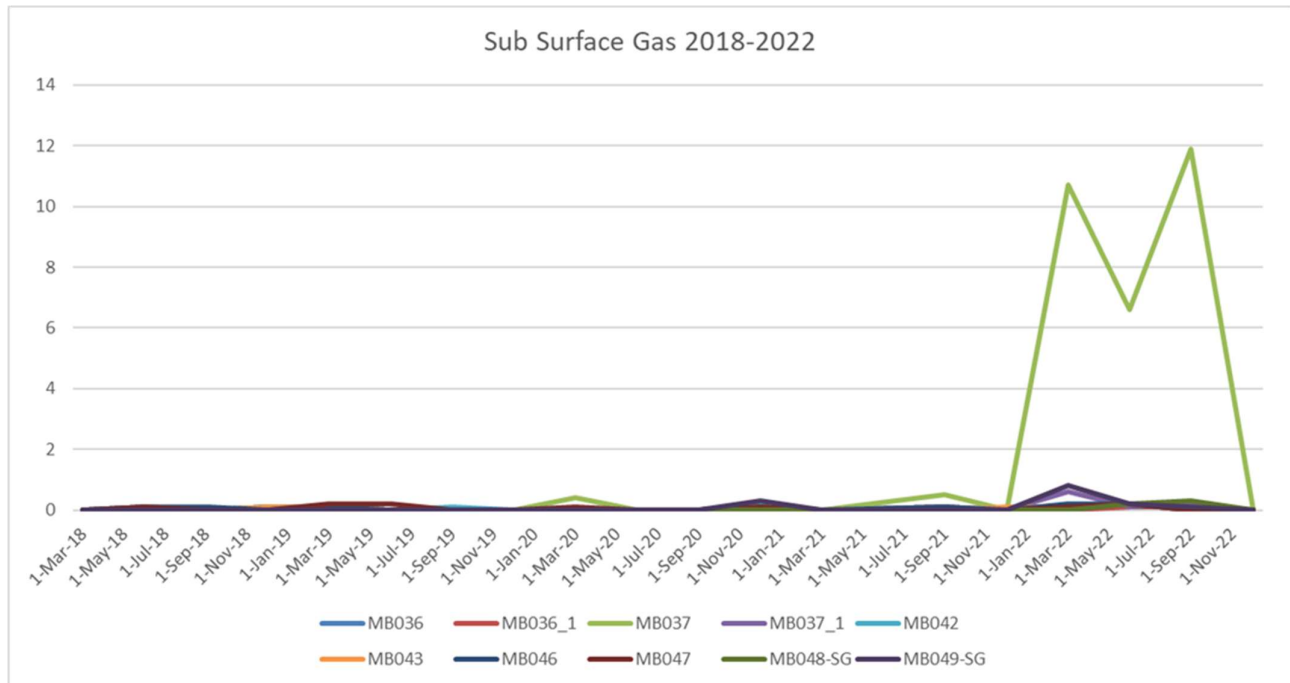
#### Subsurface Gas Monitoring Results for 2022 -

	Mar-2022	Jun-2022	Sep-2022	Dec-2022	Min	Av	Max
MB036	0.1	0.2	0.1	0.1	0.1	0.1	0.2
MB037	10.7	6.6	11.9	0.1	0.1	0.2	11.9
MB036-1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MB037-1	0.6	0.1	0.2	0.1	0.1	0.1	0.6
MB042	0.1	0.2	0.1	0.1	0.1	0.1	0.2
MB043	0.1	0.2	0.1	0.1	0.1	0.1	0.2
MB046	0.2	0.2	0.1	0.1	0.1	0.1	0.2
MB047	0.1	0.2	0.1	0.1	0.1	0.1	0.2
MB048	0.1	0.2	0.3	0.1	0.1	0.1	0.3
MB049	0.8	0.1	0.1	0.1	0.1	0.1	0.8

All results in percentage (%).

#### Results Analysis:

Bore MB037 recorded methane exceedances above 1% volume/volume in the month of March (10.7%), June (6.6%), September (11.9%) and below 1% in December. All other subsurface gas bore results were negligible for 2022.



### 9.1.2. Surface Gas

Surface landfill gas emissions are monitored quarterly in accordance with the Landfill Gas Surface Monitoring Program February 2006 and EPL 5065 Section M8.1. Monitoring was undertaken by the Compliance Officer from January 2022- September 2022, and by the contractor WSP - Golders from October – December 2022.

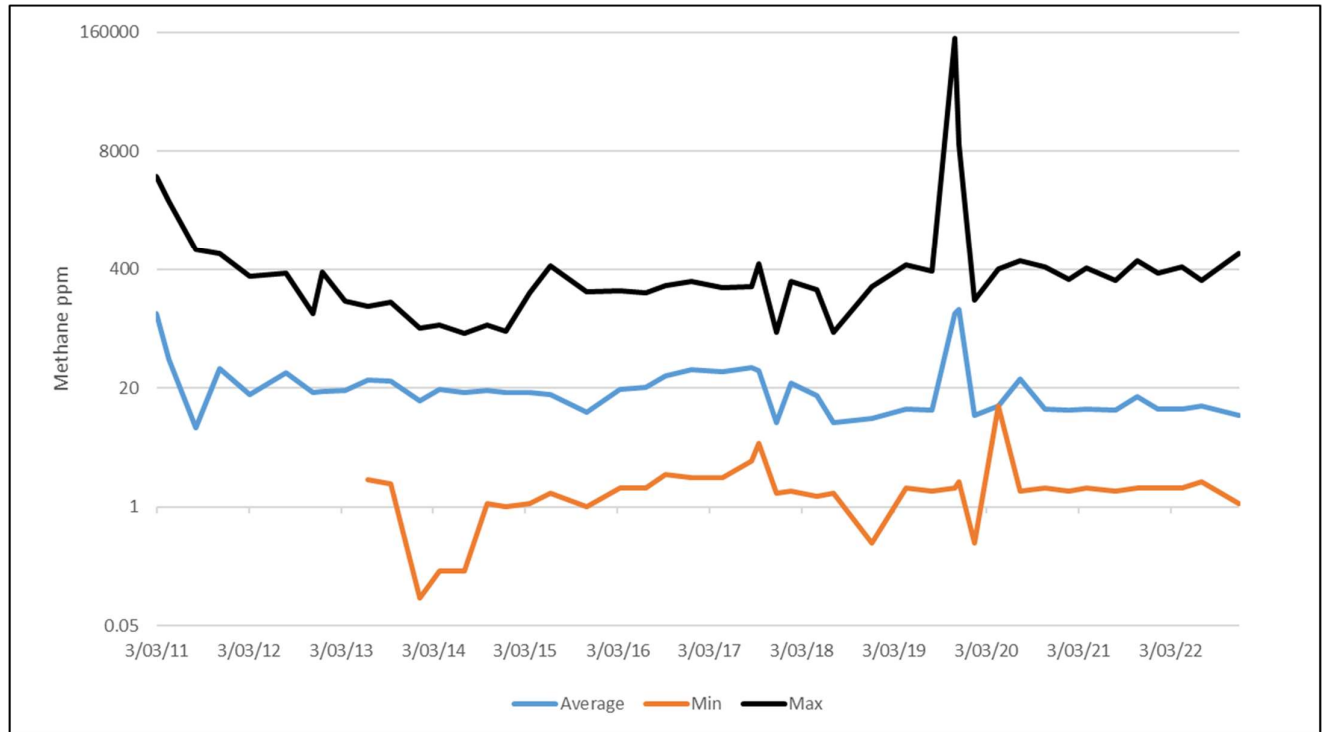
Samples of the atmosphere are taken 5 cm above the landfill surface in a grid pattern across the site, and depressions and fissures are also targeted. The threshold for corrective action is 500 ppm of methane. If an odour is detected during the monitoring, the odour is tracked upwind to the source of the odour where it is further monitored and noted for investigation.

If any exceedance of the threshold is found, then the site contractors EDL are informed and remediation works will take place on the source of the exceedance. If the exceedance is repeated and the source is still not rectified, then more detailed investigations and monitoring will be undertaken. It is a requirement of the EPL that the NSW EPA is notified within 24 hours of a result over 500 ppm on the finished areas of the landfill.

Gas accumulation monitoring is conducted to ensure landfill gas concentrations do not accumulate to unsafe levels within onsite buildings. If any exceedance of the threshold level is detected, then necessary actions are taken to mitigate and ensure the safety of staff and customers on site.

Surface Gas in 2022 was conducted in January, April, July and November.

**Minimum, Average and Maximum results for landfill surface gas across site for the period March 2011 to November 2022 -**



Any areas of high methane concentration are reported to EDL for review and possible works that may be undertaken to reduce the methane concentration in these areas. This may include additional wells and/or increased suction in these areas. These are monitored on a quarterly basis and results are provided Appendix C.

## 9.2. Groundwater & Surface Water Monitoring

### 9.2.1. Surface Water

#### **Surface Water EIS Predictions:**

With the implementation of the proposed mitigation and management measures, it is not expected that the proposal would result in an unacceptable impact in terms of sediment discharge to downstream waterways.

Activities associated with the proposal would not result in a major increase in potable water demand.

Stormwater discharged from the site is not expected to have any unacceptable impacts on flooding conditions downstream.

Re-profiling and re-capping of areas would reduce the potential risk of leachate entering the surface water system hence would not deteriorate receiving water quality.

The surface water assessment addresses the SEARs and concludes that the proposal would meet the following objectives:

- No significant impacts on the community or environment

- Prevention of surface water contamination
- Minimising sediment generation and transport off the proposal site
- Minimising soil erosion
- No significant impacts to downstream flow conditions
- Maximise use of collected water on site for dust suppression, irrigation, composting,
- Maintenance of haul roads etc.
- Keep surface water drains free of litter

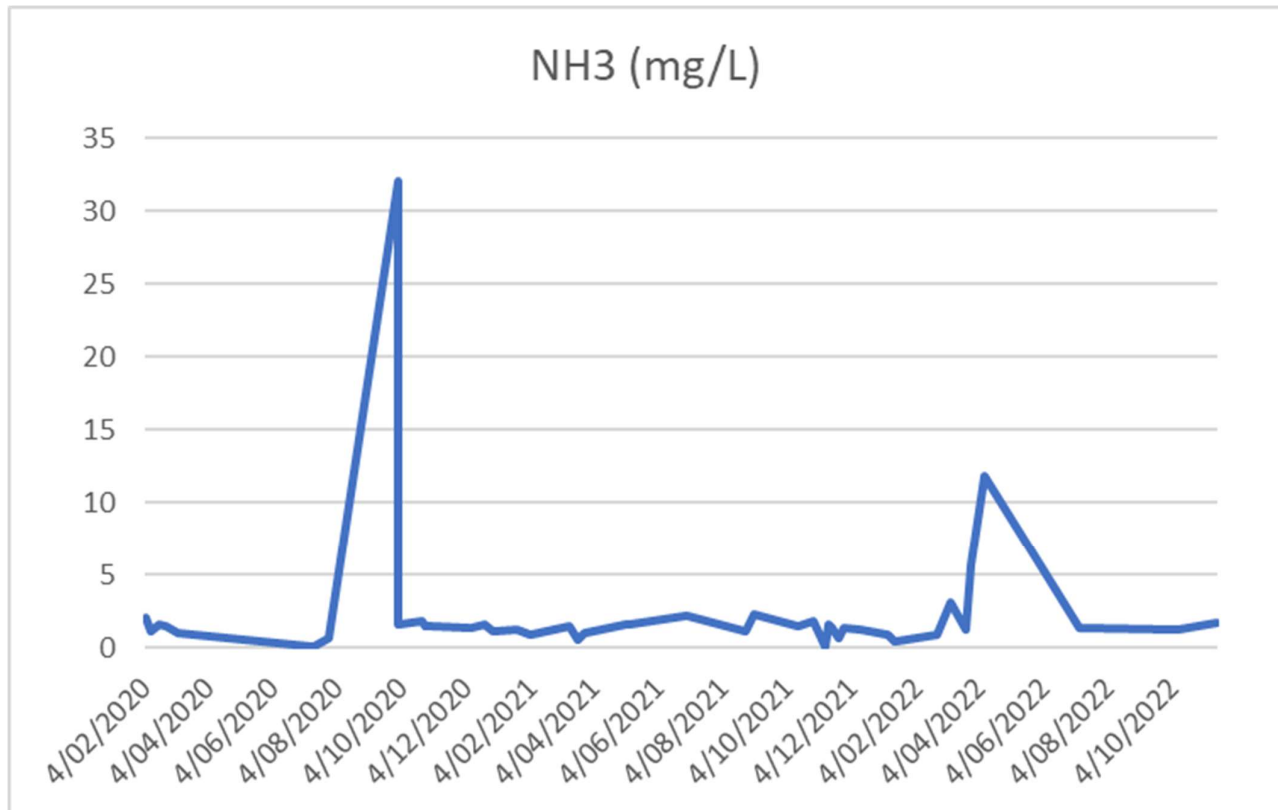
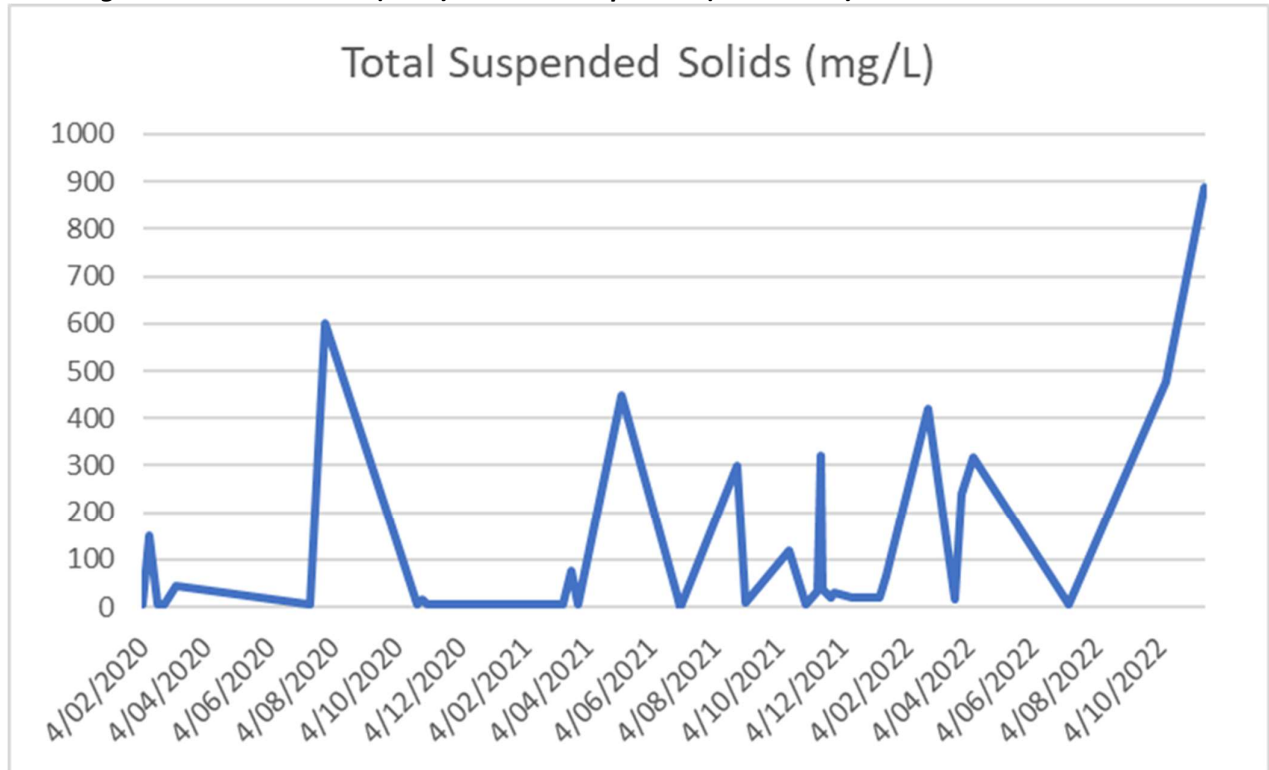
***Surface Water Statutory Requirements:***

The EPL 5065 requires the collection of samples within 24 hours of a discharge at MC1.

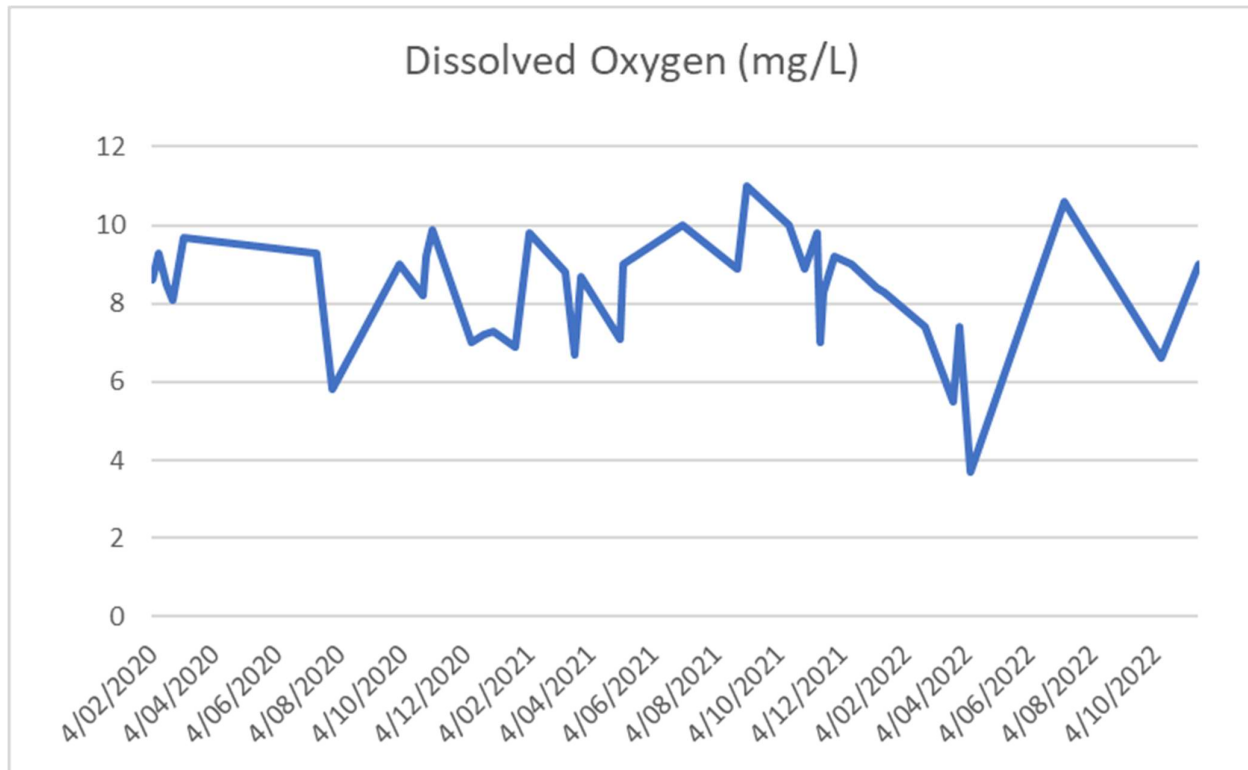
Wet weather surface water monitoring is undertaken as required by the site compliance officer and/or contractor JPG. Depending on the sample point location, wet weather samples are analysed for up to the below parameters.

Surface water samples are analysed for the following analytes:

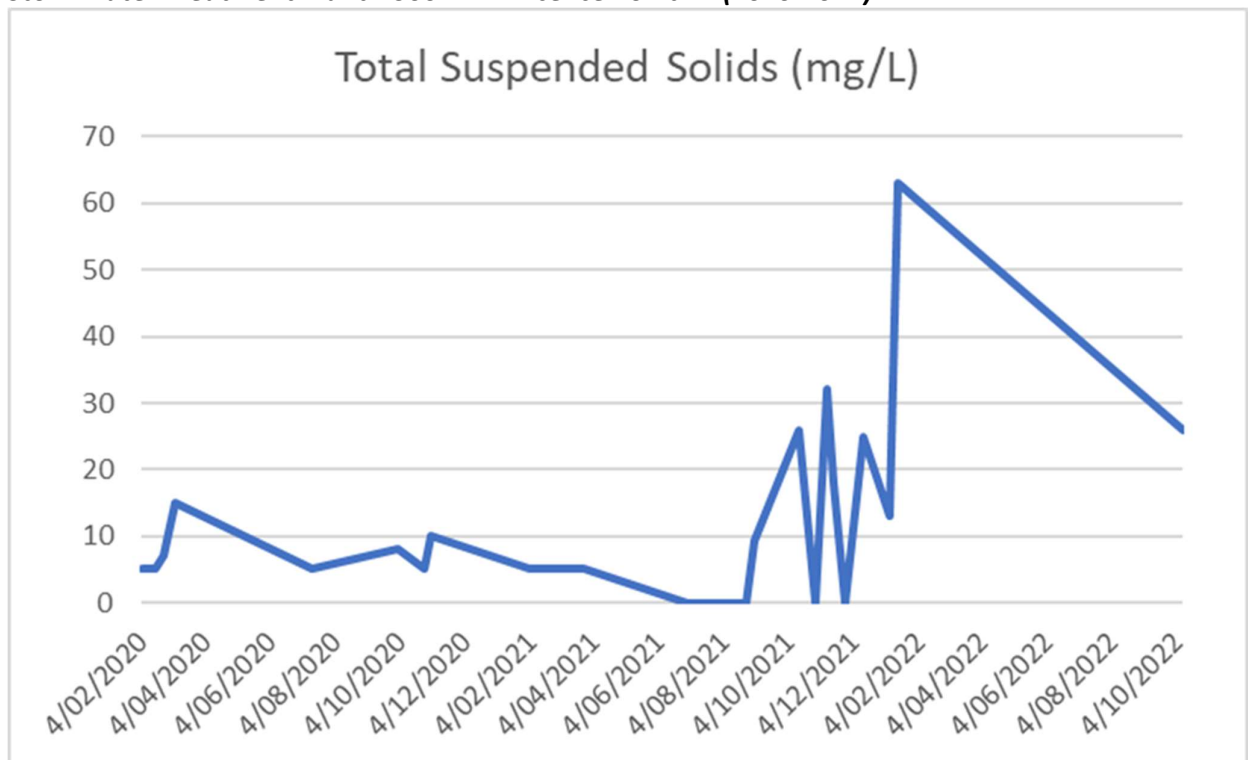
- pH (field or laboratory)
- Potassium
- Electrical Conductivity (field or laboratory)
- TSS
- TDS
- TOC
- Ammonia as N
- Dissolved Oxygen (field or laboratory)
- Phenol

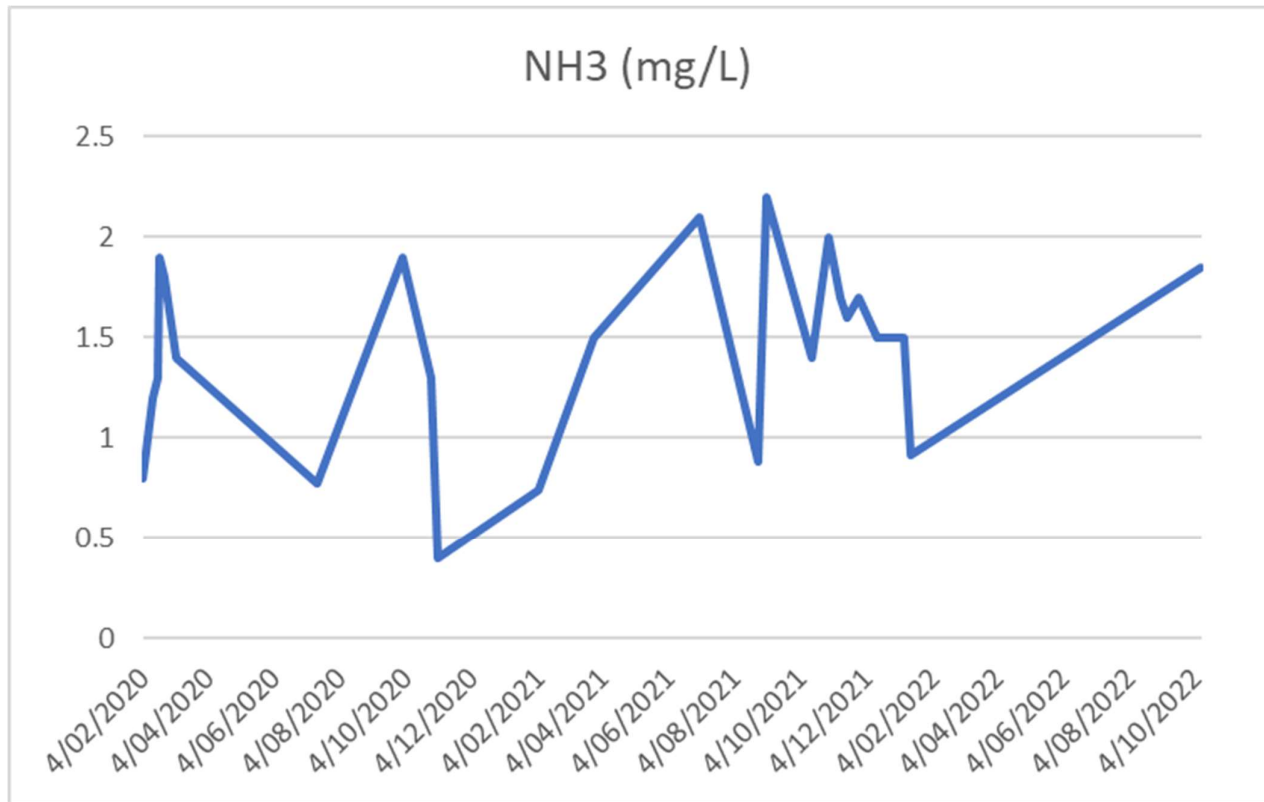
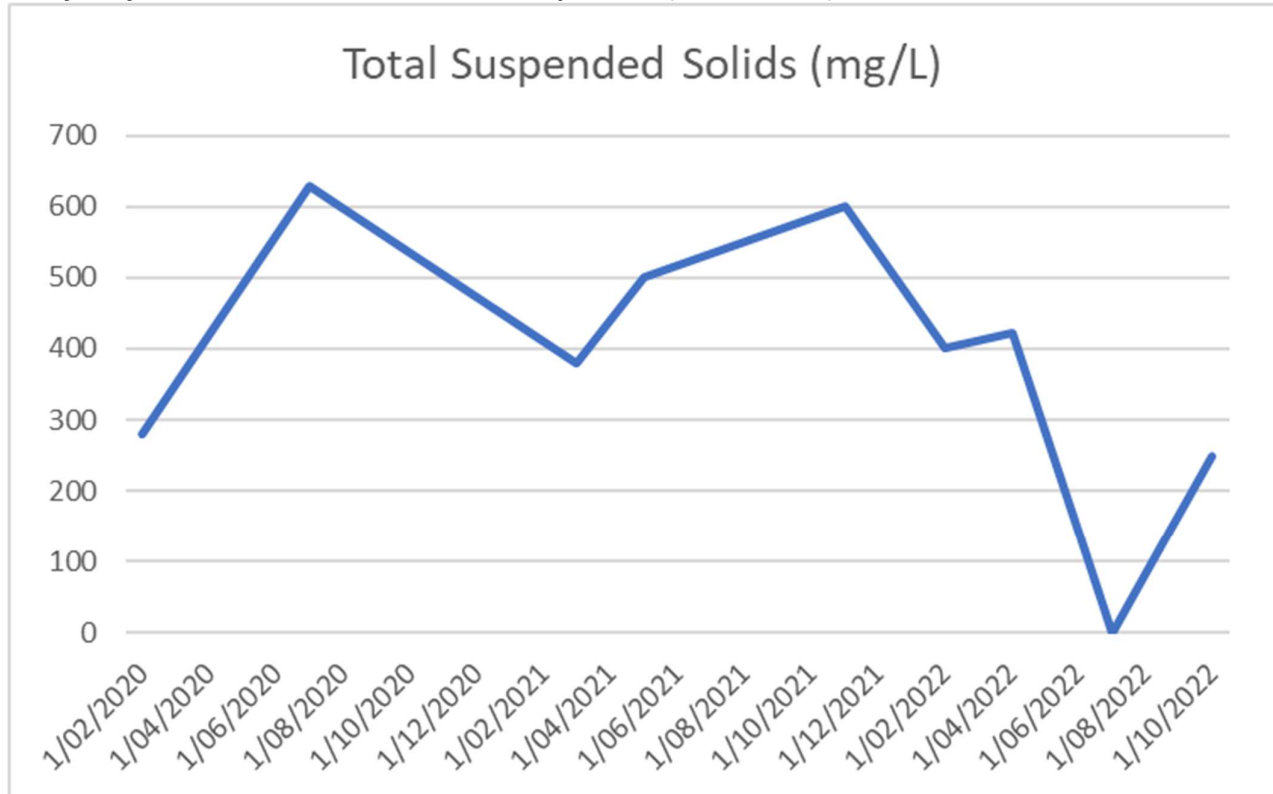
**Discharge Point at Mill Creek (MC1) EPA Licence point 1 (2020-2022)**

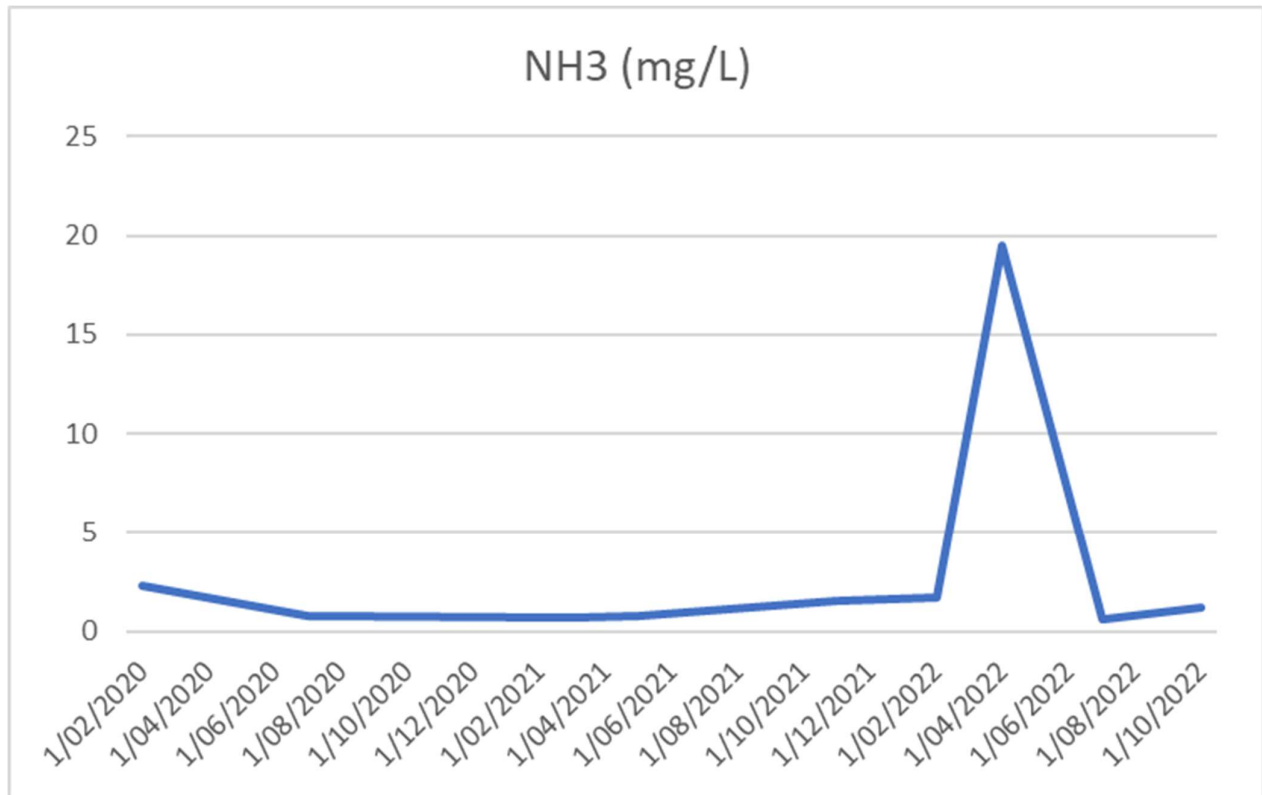




**Stormwater Treatment Plant DS001 EPA Licence Point 21 (2020-2022)**

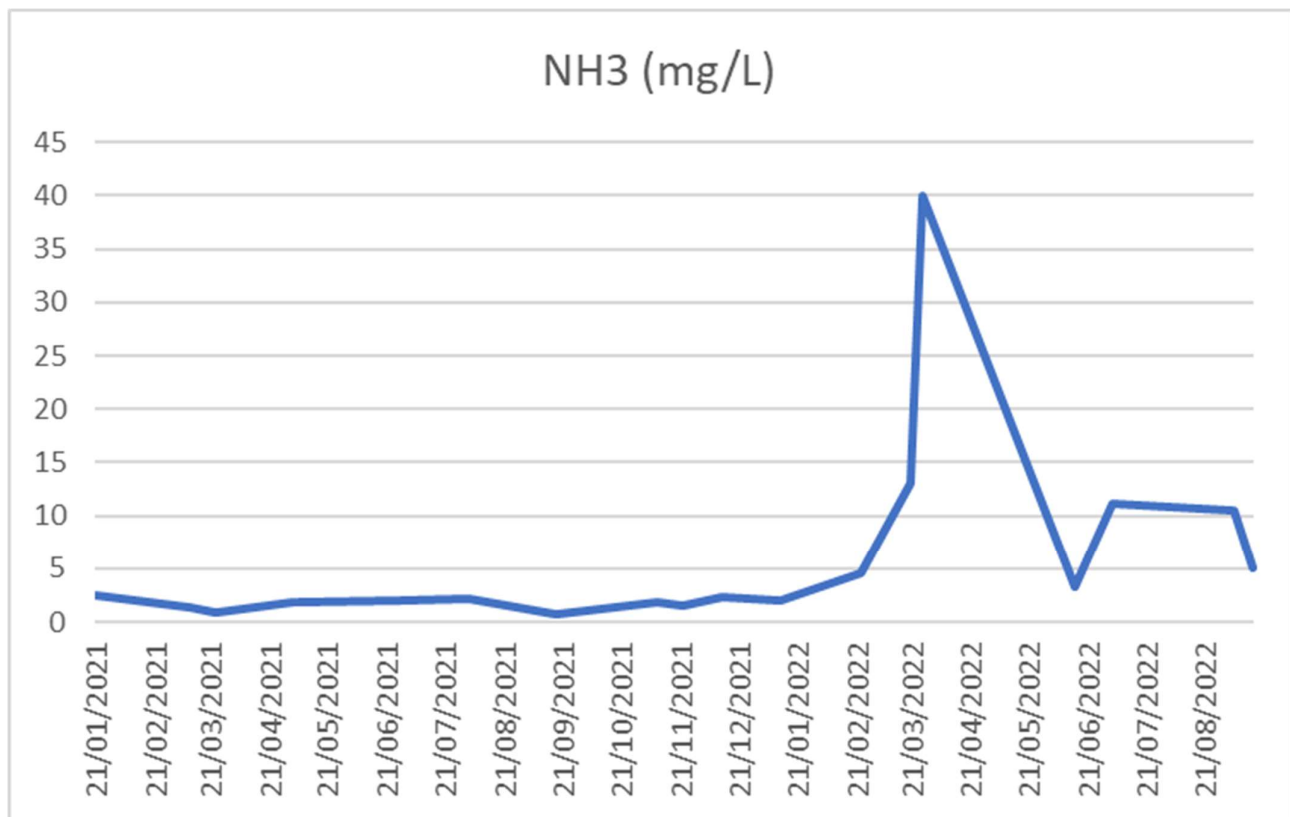
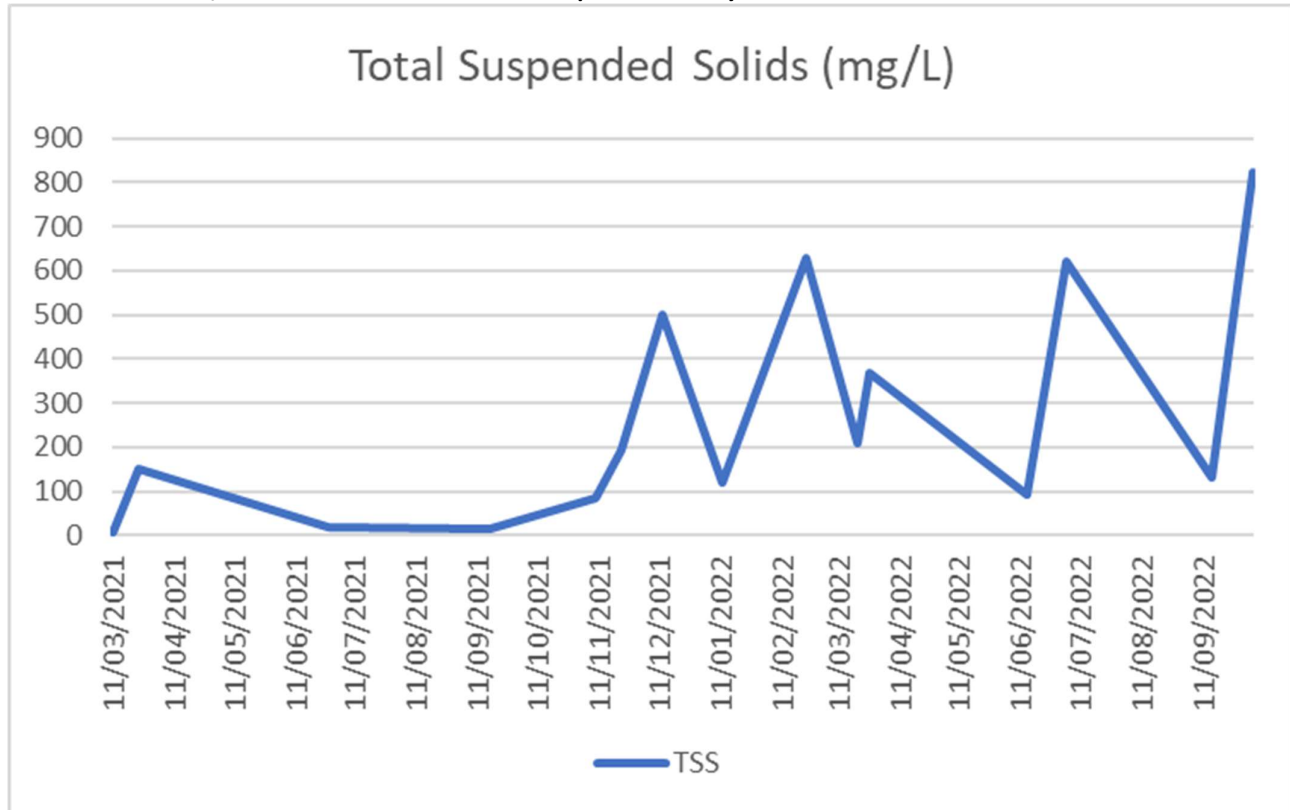


**Overflow from Sediment Dam 5, OF001 EPA point 22 (2020 – 2022)**

**Note - From the EPA licence:**

While the licence TTS limit for point 22 is 50 mg/L, L2.5 states the licensee is taken not to have breached the licence total suspended solids concentration limits for Point 1 and Point 22 if:

- the overflow is caused by a rainfall event; and
- the licensee has taken all practical measures to avoid and minimise water pollution.

**Sediment Dam 5, SD005 EPA Licence Point 23 (2020 - 2022)**

### Results Analysis:

**MP - MC1** (Discharge to waters) is monitored during a discharge event. The results were similar to previous years for all analytes apart from the following:

During a rainfall event the 50 mg/l suspended solids limit does not apply. There were 6 suspended solid results above 50mg/l during the year 2022, due to rainfall causing more discharges (i.e. extreme weather events in 2022).

There were two ammonia results exceeding the limit of 2.5 mg/l.

In the past MC1 was sampled on a time-based frequency, leading to samples being taken during times of no flow, thus low oxygen. In line with the EPL samples are only taken during times when there is flow being contributed by the landfill surface area.

**MP - DS001** (Pumped discharge from storm water treatment plant) is sampled when the storm water treatment plant is operating. There was a minor exceedance of the suspended solids limit on 14/02/2022 of 63mg/L and the dosing rate of coagulant has been increased since this exceedance occurred.

**MP - OF001** (Overflow from sediment dam) is sampled within 24 hours of discharge; there were 4 discharges during the year, three readings were above 50 mg/l in suspended solids, however they occurred during wet weather, thus high results are not unusual and within licence limits (i.e. especially during sustained extreme weather conditions).

Ammonia result for one sample was above the licence limit of 2.5mg/L, recorded at 19.5mg/L due to extreme wet weather conditions and surface water mixing with minor leachate quantities.

**MP - SD005** (Sedimentation Dam) is monitored quarterly regardless of rainfall events. There are no limits on this sampling point until it goes into overflow, at which point OF001 is monitored and its limits come into effect.



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### 9.2.2. Groundwater

#### Groundwater EIS Predictions:

Existing groundwater monitoring data suggests that the combination of the in-situ geology and current leachate collection system is resulting in concentrations of parameters in groundwater which are below the level where impacts on the surrounding groundwater and surface water systems may occur. As similar conditions would be maintained with the proposal, it is expected that there would be no unacceptable impacts from the proposed landfilling activities at the LHRRP.

The Stage 5 landfill leachate collection system and control measures have been designed and installed in accordance with best practice to facilitate preferential capture of leachate from up gradient landfill areas and further minimise the potential for impacts to underlying groundwater. The existing groundwater drainage system located beneath Stage 5 provides additional capacity for interception of groundwater in the unlikely event that adverse groundwater impacts are detected.

The proposed reprofiling of the landform and subsequent capping is expected to reduce overall infiltration to the landfill, resulting in reduced potential for impacts on underlying groundwater and down gradient receptors.

Despite this, it is important that leachate levels within the landfill are monitored and actively managed to minimise the possibility of leachate entering groundwater.

#### Groundwater Statutory Requirements:

All groundwater bores are sampled on a quarterly basis by an external contractor. Analysis of all groundwater bores are consistent from year to year with no significant fluctuations of analytes.

As required by SSD 6835 C35 a Groundwater Management Plan (GMP) be prepared by a suitably qualified and experienced person, in consultation with the EPA and DPI Water.

A GMP was prepared for the site by Douglas Partners in consultation with EPA and DPI Water and subsequently submitted to DP&E 19 October 2017.

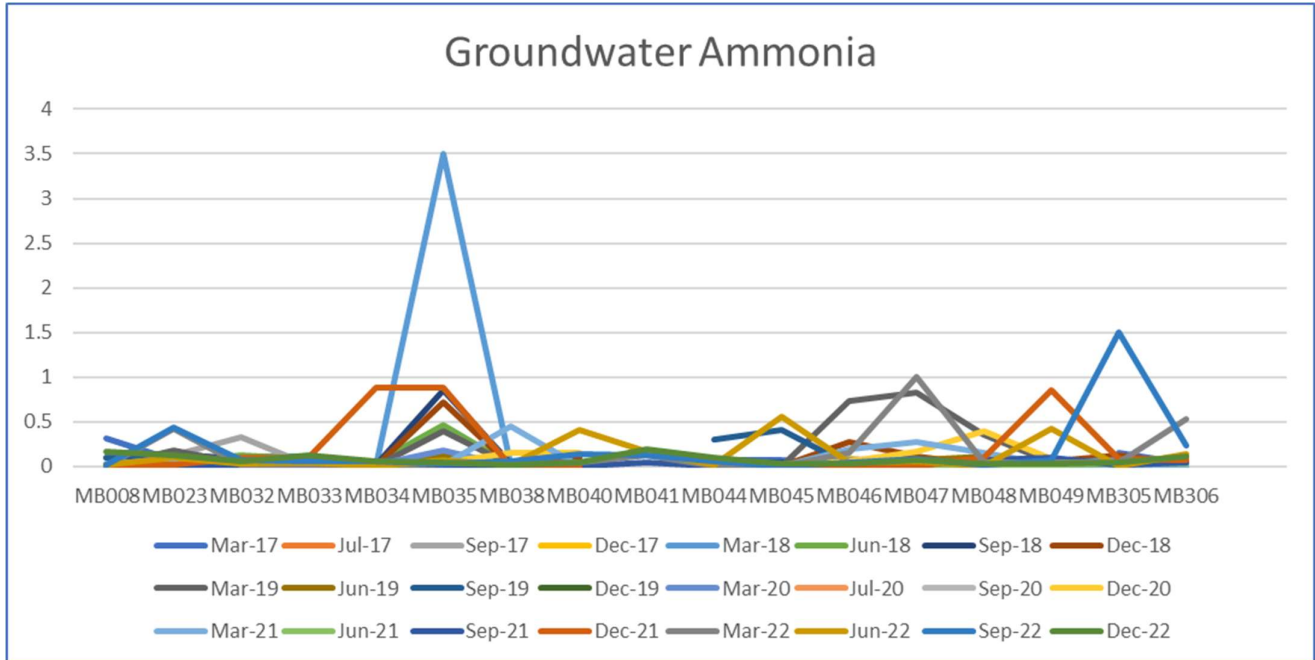
As required by the GMP additional groundwater monitoring bores have been installed to the North of the site MB048 and MB049. Attempts to refurbish MB022 were not successful.

Currently awaiting clarification from Natural Resources Access Regulator on the requirements of a Ground Water Extraction License.

#### Results Analysis:

Ammonia concentrations for March 2022 were consistent with the previous round with no exceedances of ammonia. Two exceedances were recorded in June for MB034 and MB305 which was followed by a second sampling on 15/07/2022 where ammonia concentrations decreased to <0.005 mg/L and 0.007 mg/L respectively. September monitoring detected one exceedance in ammonia of 1.5 mg/L for bore MB305 which decreased to 0.052 mg/L when resampled on the 17 November. The June and September exceedances were likely due to minor earthworks occurring

around the bore before June 2022. No ammonia exceedances were detected during the December monitoring. This quarterly monitoring will continue to occur in 2023.



### 9.2.3. Leachate

#### Leachate EIS Predictions:

The leachate assessment and water balance model indicate that the proposal would:

- Provide a final landform which increases the proportion of rainfall which would run off the surface.
- Provide a final landform which would decrease the proportion of rainfall which would infiltrate into the waste.
- Overall, generate less leachate than the current site arrangement. Through the reduction in leachate generation and the improvement of the cap and final landform, the proposal would also reduce the potential to impact the environment through surface water and groundwater.

The existing leachate management system has the capacity to manage the volumes of leachate estimated to be generated in the modelled average rainfall and wet rainfall years through the use of emergency leachate containment in the double lined emergency leachate containment dam and Cell 5.3. These containment structures were designed for this purpose.

The leachate assessment addresses the SEARs and concludes that the proposal would meet the following objectives:

- No significant impacts on the community or environment.

- Prevention of groundwater pollution by leachate.
- Prevention of surface water pollution by leachate, including Mill Creek.
- Prevention of the degradation of local amenity.

### Leachate Statutory Requirements:

Leachate flow monitoring is required to be monitored continuously and reported quarterly, under EPL 5065 for each location which is listed below.

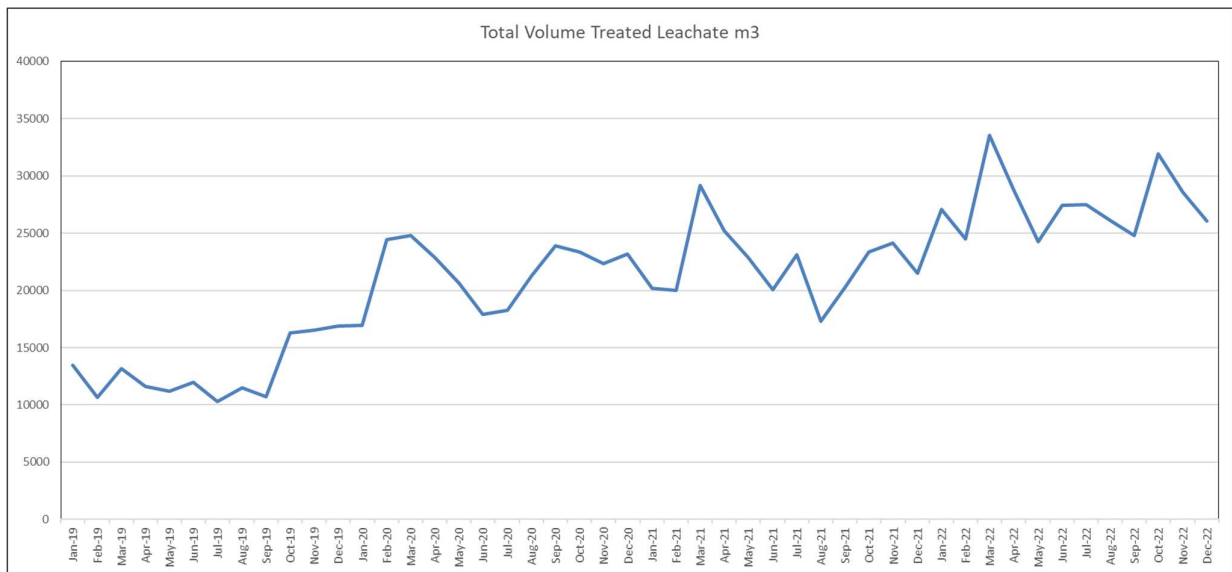
#### Leachate flow monitoring locations

EPL Identification No. Bore Number

<b>41</b>	Leachate flow monitoring – LH2 leachate flow meter
<b>42</b>	Leachate flow monitoring – LH1 leachate flow meter
<b>43</b>	Leachate flow monitoring – Harrington's Quarry leachate flow meter

Leachate collected within the dams is transferred to LH1 where the leachate is sent through a liquid treatment facility which treats the liquid before it is discharged to sewer under a Trade Waste Agreement with Sydney Water.

Leachate volumes are monitored on a quarterly basis by an external contractor.



### Results Analysis:

Leachate extraction has been reasonably stable over recent years, this is expected to lower with the improvement of the cap and final landform. Actual results are provided Appendix E.

For the year 2022, there was 2397 mm rainfall on the landfill and therefore the treated leachate volume was 330,447 m<sup>3</sup> for the year.

The leachate water balance model in EIS predicts an average volume of 247,060 m<sup>3</sup> and a wet volume of 307,563 m<sup>3</sup>. The actual volume of leachate generated in 2022 is therefore above these two numbers and this emphasises the extreme weather conditions encountered at the site in 2022.

### 9.3. Noise

Note, preparation works for the construction of the GO facility commenced in January 2023.

#### EIS Noise Predictions:

Construction activities are predicted to comply with the 'Interim Construction Noise Guideline' (DECC 2009) construction noise management levels at all sensitive receivers both during standard and outside of standard recommended hours. The nearest sensitive receivers are over 300m from the proposal site. Due to the distance from the proposal site, construction vibration impacts are not anticipated at any sensitive receivers.

The noise levels, assuming all equipment to be operational at the landfill, GO facility and ARRT facility (a conservative assumption), are predicted to comply with all noise criteria. The road traffic noise levels from the proposal are also predicted to comply with the noise criteria at sensitive receivers along the traffic routes.

This assessment addresses the SEARs and concludes that the proposal would meet the following objectives:

- No significant impacts on the community or environment
- Prevent the degradation of local amenity
- Prevent noise pollution.

From EIS, Predicted operational noise levels

Receiver	Noise criteria dB(A)		Predicted noise level, LAeq(15min) dB(A)
	Day	Night	
R1 Engadine	45	37	31-32
R2 Barden Ridge	47	38	29
R3 Menai	45	37	26-27
R4 ANSTO	65	-	40-48
R5 ANSTO Motel	65	40	36-40
R6 Gandangara	45	37	37
R7 Gandangara North	45	37	31-34
R8 The Ridge Sports Complex	55	-	35

Noise measurements were conducted on 19 December 2022 by RWDI, with the following results:

Location	Minimum Recorded Level	Estimated Site Noise Contribution $L_{Aeq}$	Noise limit $L_{Aeq,15min}$	Compliance
R1	45	< 35	35	Yes
R2	41	< 31	35	Yes
R3	44	< 34	35	Yes
R6	42	< 32	37	Yes
R7	37	< 27	35	Yes

### Results Analysis:

The report concluded:

*The Lucas Heights Resource Recovery Park is required to conduct annual compliance noise monitoring as outlined in Development Consent SSD 6835. This report details the annual monitoring that took place on the 19 December 2022.*

*Noise contributions from the LHRRP at the surrounding residential receivers have been measured and assessed. The assessment found that all the relevant requirements of the Development Consent have been complied with.*

## 9.4. Dust

Cleanaway conducts monthly dust deposition monitoring around the boundary of the site using dust deposition gauges which collect dust over approximately one month (i.e. 30 days  $\pm$  2days). The samples are analysed, and a one-month deposition rate is calculated.

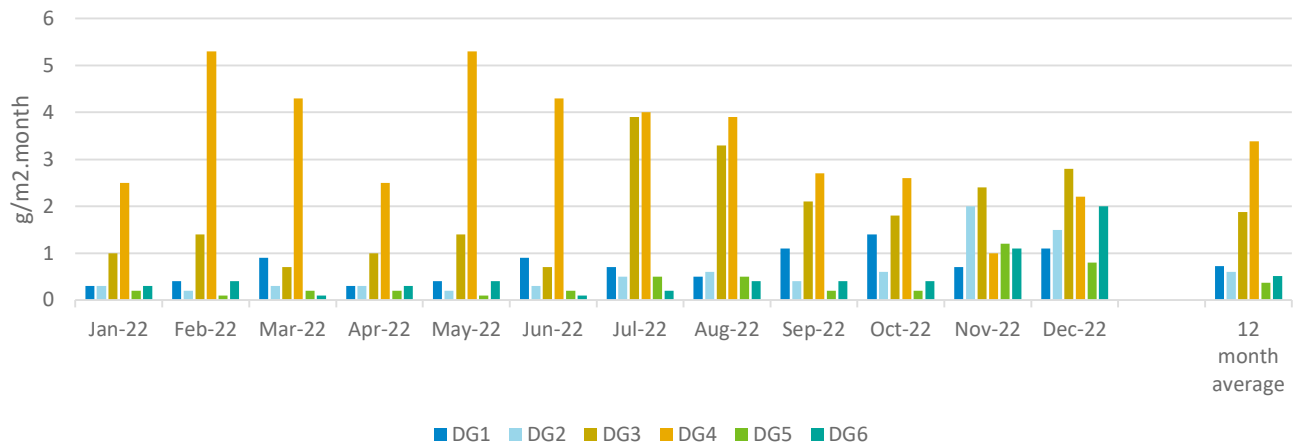
NSW EPA assessment criteria allows a dust deposition rate of 4 g/m<sup>2</sup> month.



### Lucas Heights Resource Recovery Park Dust Gauge Locations



### Dust Deposition at Lucas Heights Landfill



## Results Analysis:

Dust gauge 4 has higher readings than other dust gauges and recorded 4 readings over the NSW EPA limit for February, March, May, June 2022. All other dust gauge readings were consistent with historical data.

Cleanaway believe that the results at Dust gauge 4 could be due to the excavation activities occurring in this area, the moving of soil mounds near the north wall and/or construction around the dust gauge. In 2023, the results will be monitored and the data shall be analysed for any trending in this area.

## 10. Waste Limits

Cleanaway has provided the updated waste volumes for 2022 below:

<b>B6. The Applicant shall not receive more than:</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
(a) 850,000 tonnes of general solid waste (putrescible and non-putrescible) and asbestos waste per year on site for landfill disposal;	836,456	826,373	870,519	978,126
(b). 10,000 tonnes of general solid waste (non-putrescible) and batteries per year on site at the Resource Recovery Centre and waste collection point;	8,686	10,633	10,041	491*
(c) 50,000 – 80000 tonnes of garden and wood waste per year and 2,000 tonnes of manure at the GO Facility;	50 285	64,234	55,597	55,099
(d) 200,000 tonnes of general solid waste (putrescible and non-putrescible) per year including 10,000 tonnes of biosolids at the ARRT Facility; and	Nil	Nil	Nil	Nil

*All results in Tonnes.*

*\*SCC clarified that the limit is for recyclables only*

## 11. Improvement Programs

Several improvements to the environmental management of the LHRRP have been implemented during this reporting period. These improvements were implemented as a result of findings by Cleanaway's ongoing inspections and monitoring as well as findings identified by regulatory inspections.

**Examples of these improvements include:**

- Installation of dual gas and leachate trench/s in Area G.
- Installation of final cap in Area A and B.
- Additional gas collection wells in Area G.
- Completion of clearing the existing maturation pad of the Garden Organise Facility.
- Submitted the revised AQOPM to DPIE.
- Submitted the Consent Mod Number 2.
- Completed the wheel wash upgrade.

**Improvements that will be implemented during the next reporting period include:**

- More final cap will be installed in Area G and C.
- Install the dual gas and leachate cutoff trench/S in Area C and F.
- Completion of the gas collection system in Area G.
- Two additional ground water monitoring bores are scheduled to be installed on the western boundary of the landfill in preparation for the relocation of the Garden Organic Area.
- Commencement of the excavation of the new Garden Organics (GO) Facility.
- Commencement of Mill Creek diversion and associated works.

There is no action proposed by the previous Annual Review.

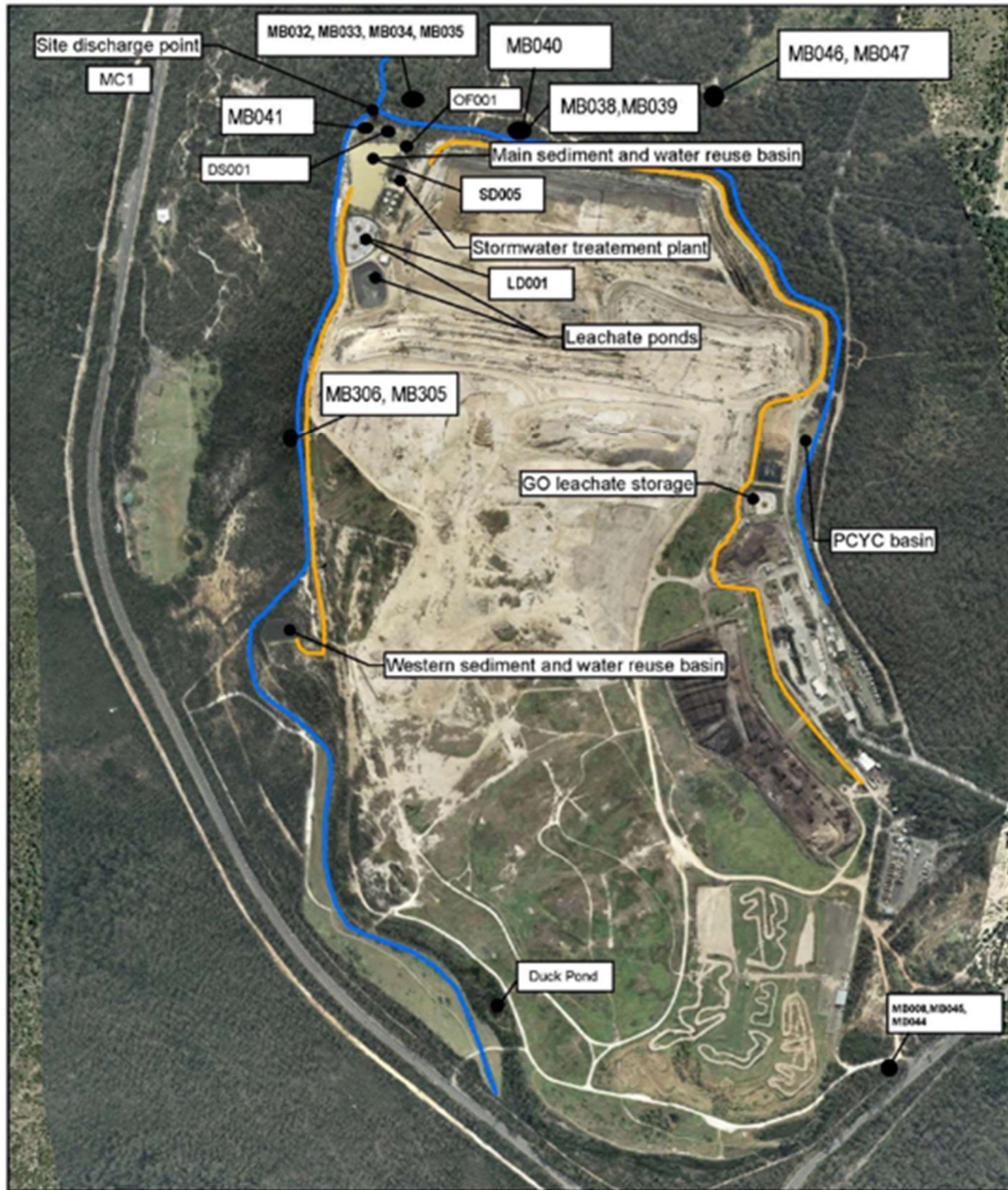
## 12. Conclusions

Based on the results of environmental monitoring undertaken at LHRRP, the overall environmental performance in this reporting period can be demonstrated to be well managed especially considered the extreme weather conditions encountered in 2022.

There were a number of significant projects, such as the installation of final cap material, which will assist in maintaining environmental and operation compliance. Furthermore, with the continuation of remediation projects, such as the ongoing litter picking, extension of the dual leachate and gas trench/s and increasing the number of gas extraction wells, this will continue to improve our environmental performance.



## APPENDIX A – Monitoring Points



### LEGEND

- Clean water drainage line
- Disturbed area drainage line

## APPENDIX B – Subsurface Gas

	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22
MB036	0	0.1	0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1
MB036_1	0	0	0	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1
MB037	0	0	0	0	0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	0.1	<0.1	0.5	<0.1	10.7	6.6	11.9	<0.1
MB037_1	0	0	0	0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.6	0.1	0.2	<0.1
MB042	0	0	0	0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1
MB043	0	0	0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1
MB046	0	0.1	0.1	0	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1	<0.1
MB047	0	0.1	0	0	0.2	0.2	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1
MB048-SG	0	0	0	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	<0.1
MB049-SG	0	0	0	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	0.8	0.2	0.1	<0.1

## APPENDIX C – Surface Gas Monitoring Data

Date	Average	Min	Max
3/03/11	130.0	0.0	4225.0
21/04/11	41.0	0.0	2240.0
4/08/11	7.3	0.0	662.0
8/11/11	32.7	0.0	589.0
6/03/12	17.2	0.0	333.0
26/07/12	29.3	0.0	359.0
13/11/12	18.1	0.0	130.0
20/12/12	18.6	0.0	370.0
20/03/13	18.9	0.0	177.0
18/06/13	24.4	2.0	158.0
16/09/13	23.9	1.8	173.8
8/01/14	14.7	0.1	90.1
27/03/14	19.4	0.2	98.1
3/07/14	17.7	0.2	79.6
1/10/14	19.1	1.1	98.2
17/12/14	18.1	1.0	84.2
20/03/15	17.9	1.1	220.0
11/06/15	17.1	1.4	431.2
2/11/15	10.9	1.0	225.8
11/03/16	19.3	1.6	231
24/06/16	20.4	1.6	221
7/09/16	27.4	2.3	264
21/12/16	31.6	2.1	294
21/04/17	30.4	2.1	251
16/08/17	33.5	3.2	261
12/09/17	31.1	5	454.7
20/11/17	8.38	1.4	81.4
19/01/18	22.42	1.5	294
30/04/18	16.7	1.3	241.3
5/07/18	8.38	1.4	81.4
6/12/18	9.37	0.4	257.5
18/04/19	11.9	1.6	446.4
1/08/19	11.4	1.5	377.7
31/10/19	129.2	1.6	135590.7

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15/11/19	145.8	1.9	9409.9
16/01/20	10.1	0.4	181.4
20/04/20	12.9	12.9	401.8
14/07/20	25.4	1.5	491.4
21/10/20	11.9	1.6	421
22/01/21	11.4	1.5	309.2
2/04/2021	11.81	1.6	413.2
27/07/2021	11.47	1.5	298.3
21/10/2021	16	1.6	497.7
10/01/2022	11.78	1.6	362.1
18/04/2022	11.86	1.6	421
4/07/2022	12.86	1.9	301.2
29/11/2022	10.11	1.1	603



## APPENDIX D – Groundwater Ammonia Monitoring Data

	Mar-17	Jul-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jul-20	Sep-20	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22
MB008	0.32	0.005	0.096	<0.005	<0.005	0.016	<0.005	<0.005	<0.005	<0.005	0.097	<0.050	0.02	<0.005	<0.005	0.007	0.03	<0.005	0.01	0.017	0.005	0.021	0.024	0.17
MB023	0.079	0.09	0.12	0.055	0.12	0.053	0.14	0.09	0.18	0.066	0.088	0.048	0.096	0.078	0.051	0.074	<0.005	0.01	0.017	0.43	0.094	0.44	0.12	0.12
MB032	0.11	0.062	0.33	0.11	0.066	0.12	0.085	0.024	0.034	0.027	0.008	0.011	0.034	0.039	0.02	0.022	0.072	0.073	0.016	0.094	0.016	0.035	0.071	0.058
MB033	0.11	0.062	0.022	0.011	0.022	0.087	0.051	0.011	<0.01	<0.005	<0.005	<0.005	0.083	<0.005	0.014	0.046	0.024	0.073	0.016	0.094	<0.005	0.04	0.054	0.13
MB034	0.019	0.025	0.011	<0.005	0.008	0.047	0.012	<0.005	0.007	<0.005	<0.005	<0.050	0.025	<0.005	0.014	0.046	0.015	<0.005	0.011	0.88	0.007	0.005	0.06	0.065
MB035	0.019	0.025	0.025	<0.005	3.5	0.46	0.86	0.72	0.39	0.13	0.048	0.069	0.18	0.039	0.039	0.048	0.024	<0.005	0.011	0.88	0.028	0.076	0.037	0.048
MB038	0.019	0.025	0.006	<0.005	0.017	0.025	0.026	0.009	0.013	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	0.15	0.45	0.013	<0.005	<0.005	0.037	0.022	0.06	0.022
MB040	0.023	0.083	0.014	0.006	0.016	0.02	0.039	0.1	0.01	0.012	0.048	<0.005	0.016	0.006	0.012	0.15	0.005	0.013	<0.005	<0.005	0.04	0.41	0.14	0.042
MB041																			0.044		0.12	0.17	0.12	0.19
MB044	0.069	0.009	0.028	<0.005	<0.005	0.019	0.032	<0.005	0.006	0.006	0.3	<0.005	0.012	<0.005	0.006	<0.005	0.016	0.013	<0.005	<0.005	<0.005	0.022	0.063	0.1
MB045	0.069	0.009	0.02	<0.005	<0.005	0.016	0.039	<0.005	<0.005	<0.005	0.41	<0.005	0.013	<0.005	<0.005	0.013	0.005	0.011	0.008	<0.005	<0.005	0.56	0.007	0.028
MB046	0.014	0.01	0.086	0.086	0.015	0.02	0.032	0.27	0.74	0.014	0.021	<0.005	0.076	<0.005	0.021	0.056	0.19	0.011	0.009	0.008	0.15	0.041	0.051	0.036
MB047	0.024	0.028	0.047	0.022	0.04	0.012	0.031	0.11	0.83	0.066	<0.005	<0.005	0.019	<0.01	0.05	0.17	0.28	0.019	0.018	0.011	1	0.064	0.083	0.078
MB048					<0.005	0.012	0.016	0.014	0.35	0.11	0.048	<0.005	0.024	0.007	0.009	0.4	0.15	0.014	0.076	0.1	0.048	0.005	0.025	0.032
MB049					0.02	0.029	0.045	0.056	0.043	0.045	0.057	0.025	0.043	0.031	0.036	0.082	0.019	0.023	0.1	0.85	0.04	0.43	0.075	0.035
MB305	0.16	0.13	0.051	0.024	0.054	0.048	0.049	0.12	0.032	0.025	0.005	0.007	0.067	0.008	0.014	<0.005	0.011	0.031	0.016	0.09	0.042	0.007	1.5	0.052
MB306	0.026	0.006	0.094	<0.005	0.037	0.068	0.013	0.033	0.012	0.024	<0.005	<0.005	0.092	<0.005	0.016	0.097	0.008	0.03	0.043	0.07	0.53	0.14	0.23	0.11

## APPENDIX E – Leachate Treated at Lucas Heights 1 Treatment Plant

Date	Total Volume Treated Leachate m3
Jan-19	13446
Feb-19	10653
Mar-19	13203
Apr-19	11599
May-19	11210
Jun-19	11961
Jul-19	10290
Aug-19	11519
Sep-19	10723
Oct-19	16288
Nov-19	16526
Dec-19	16908
Jan-20	16932
Feb-20	24461
Mar-20	24773
Apr-20	22886
May-20	20641
Jun-20	17927
Jul-20	18246
Aug-20	21272
Sep-20	23908
Oct-20	23345
Nov-20	22330
Dec-20	23175
Jan-21	20205
Feb-21	20005
Mar-21	29175
Apr-21	25212
May-21	22853
Jun-21	20042
Jul-21	23101
Aug-21	17310
Sep-21	20223
Oct-21	23330
Nov-21	24160
Dec-21	21521

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Jan-22	27054	
Feb-22	24490	
Mar-22	33551	
Apr-22	28822	
May-22	24232	
Jun-22	27434	
Jul-22	27504	
Aug-22	26093	
Sep-22	24768	
Oct-22	31911	
Nov-22	28557	
Dec-22	26031	<b>330447</b>

## APPENDIX F – Noise Monitoring Locations



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*End of Document*

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